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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Hail Baseball!
Tebbetts Is Our Guy
Up-to-Date Dope
In the Meantime, Back at the Ranch
They Come In All Sizes
So You Got Troubles?
Enter the Newspapers
Prime Crime News
Bob Feller Now Is a Legend
Mental Cruelty
Dreams of Valor
There's One In Every Crowd

Hail Baseball!

It almost slipped up on us this time—the opening of a new baseball season. Time seems to telescope nowadays.

Thanks to reminders by associates, however, herewith is our annual Beginning of the Season compendium of anecdotes about the National Pastime.

For years John Drebinger covered the Brooklyn Dodgers for the *New York Times*. Then he was shifted to the Giants beat. In his first poker game with the latter club, his hand was called by Freddie Lindstrom.

"Three kings," prouded Drebinger.

"Look again," Lindstrom nabbed. "You got two kings and a jack. Once a Dodger, always a Dodger!"

For our money, one of the greatest newspaper "leads" ever written on a World Series game was set up by Shirley Povich of Washington in 1956. It began:

"Hell froze over, there were 30 Sundays in the month, and Don Larsen pitched a perfect no-hit, no-run, World Series game today."

Tebbetts Is Our Guy

"To show you what I genius I am," Cincinnati Manager Birdie Tebbetts is quoted, "on the next-to-last day of the 1956 season my Redlegs needed only one homer to tie the all-time National League record of 221. I sent up Smokey Burgess to pinch hit, and ordered him to bang it out of the park. He did.

"Next day, hoping to set a new mark, I issue the same order 35 times. But nobody obeyed me."

What makes a ballplayer great? *Desire!* Illustration:

Birdie Tebbetts had worked his way upward to the Detroit Tigers. Month after the season started, Manager Mickey Cochrane gave Tebbetts and two other rookies the bad news that

(Continued on Page 16, Col. 1)

Issue Draft of Refrigerator Latch Standard

WASHINGTON, D. C.—Draft of a standard for safety devices to permit the opening of household refrigerator doors from the inside is currently being circulated for comment by the U. S. Department of Commerce.

The proposed standard for devices to enable children who become trapped in refrigerators to escape was announced on April 16 by Secretary of Commerce Sinclair Weeks.

It was made public three and a half months ahead of the deadline set by Congress last August. At that time Congress passed a law requiring household refrigerators in interstate commerce to be equipped with safety devices meeting this standard before Nov. 2, 1958. That law is

(Concluded on Page 10, Col. 1)

UA Won't Insist on UA Card, Clearance As Job Requirement

WASHINGTON, D. C. — The United Association has agreed, in its contracts with employers, not to require membership in its union as a condition of employment or to require employes or applicants for employment to obtain clearance or job referrals from it.

This agreement came about through a settlement stipulation with the National Labor Relations Board in a case involving the international union, its Local 120 (Cleveland), and the Grinnell Corp., piping contractor on atomic energy work.

The settlement stipulation

(Concluded on Back Page, Col. 1)

Ask St. Louis Exception On Water-Waste Charge

ST. LOUIS—A petition has been filed here by St. Louis county to except all owners of water-cooled air conditioners installed before May 1 which do not have a water-conserving device from paying a St. Louis County Water Co. surcharge.

The intervening petition was filed with the Missouri Public Service Commission in a case in which 25 customers of the water company contend the surcharge is illegal. It was filed by County Counselor William B. Kline and

(Concluded on Back Page, Col. 1)

Army Was Never Like This! Has Conditioned Barracks

FT. SILL, Okla.—A recently-completed barracks housing 263 men of the 246th Corporal Missile Battalion looks like any other Army barracks. But "something new" has been added. This one's air conditioned for the hot Oklahoma summers.

SMI Members Plan 23% More Stores In '57

CLEVELAND — Members of the Super Market Institute have "definite plans" to open 23 new supermarkets this year for every 100 they now operate.

This was revealed in the annual membership study made by Curt Kornblau, SMI director of research. He reported results at the SMI annual convention here recently.

Kornblau's study also revealed that supermarkets registered an 18% gain in dollar volume last year, their highest percentage gain since 1951. Existing stores registered a 5% gain over 1954, the highest rate since 1953. The remainder of the total was made through opening of new stores.

Of the 23% more new mar-

(Concluded on Page 5, Col. 1)

Commercial Section

A special feature of this issue of the NEWS is the Commercial Refrigeration Section consisting of six pages of interesting articles and pictures on markets, products, and methods in that field. The index at the bottom of this page lists section highights. Related articles of particular interest to commercial firms are on pages 22 and 36.

Utility To Permit 1-Hp. Motor Use on 120-Volts

WASHINGTON, D. C.—Potomac Electric Power Co. has made an electric service rule change to allow operation of single phase, alternating current motors up to and including 1 hp. from 120-volt circuits.

Robert W. Wilson, vice president, pointed out that paragraphs 5-10 and 5-11 of the company's Electric Service Rules and Regulations, effective Jan. 1, 1954, state that single phase, fractional horsepower, alternating current motors may be connected for operation from either 120-volt, 208-volt, or 240-volt circuits and that 1 hp. and large alternating current motors shall be connected to 208 or 240-volt circuits.

"We recently amended the

(Concluded on Back Page, Col. 2)

Sees Mortgage Buying Revival

NEW YORK CITY—"A notable revival of mortgage buying by savings banks" was seen "in the past few weeks" by John F. Austin, Jr., president of T. E. Bettes Co., mortgage banker of Houston, Texas.

He told the eastern conference of Mortgage Bankers Association of America that increasing amounts of money are becoming available for lending on housing mortgages. A number of

(Concluded on Back Page, Col. 4)

Urges U. S. 'Insist' Its Cooling Units Follow ARI Standards

ARI To Present Compliance Plan For Room Units

WASHINGTON, D. C. — A plan for a compliance program on ratings of room air conditioners will be presented at the annual meeting of the Air-Conditioning & Refrigeration Institute at Hot Springs, Va. next month, but no action—such as engaging the services of an independent testing laboratory—has been taken as yet, it was stated at the ARI offices here last week.

In a report published elsewhere, it was stated flatly that George S. Jones, ARI managing director, had told the Association of Better Business Bureaus convention in New Orleans that ARI had engaged the services of an independent laboratory to check on the ratings of air conditioning units.

The ARI is considering the possibility of using an independent laboratory to test units bought on the open market, where a complaint has been made on the rating of the unit issued by the manufacturer. However, such a plan has not been submitted to the ARI board for approval, and there is a chance that it might never be.

The same goes for the idea of putting the B.t.u. ratings on the nameplate of the unit.

There is said to be considerable backing for a plan of testing of air conditioning unit capacity by competitors, with the results being transmitted through the ARI offices. Then

(Concluded on Page 41, Col. 3)

Lawler Says 'Teeth' Being Put In Group's 'Compliance Program'

WASHINGTON, D. C.—"Government buyers of air conditioning" should "insist that the equipment comply with ARI standards, especially on such an important item as capacity rating," urged M. M. Lawler, vice president, Worthington Corp., and president of Air-Conditioning & Refrigeration Institute at the recent government-industry symposium sponsored here by the U. S. Department of Commerce and industry groups.

Such standards are available on room coolers, residential, and commercial packaged units and central units, Lawler told the symposium, and he emphasized that ARI is instituting a "compliance program" with "teeth."

"We believe," Lawler expained, "that all equipment should be built in strict conformance with the entire code of standards—but in a trade association compliance is purely voluntary.

"Under the law we have no power to enforce requirements or to punish any who fail to comply. We can't put anybody out of ARI membership because

(Concluded on Page 37, Col. 1)

Las Vegas Drive-In Offers Conditioned Curb Service

LAS VEGAS, Nev.—Air conditioned curb service is a new feature offered by a drive-in hamburger emporium here.

While you wait for your 'burgers and coffee, the carhop installs an individual curb-service air conditioner in your car.

The place is the Blue Onion, operated by Billy Brandt.

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Hermetic Systems Conclave To Lead ASRE Miami Beach Meeting June 3-5

NEW YORK CITY—Preliminary technical and social details for 53rd annual meeting of the American Society of Refrigerating Engineers, to be held June 3 through June 5 at the Hotel Fontainebeau in Miami Beach, have been announced by the program committee.

There will be two technical sessions and a research conference on Monday, June 3. The opening technical session on Monday morning will have papers on "Methods of Improving Food Preservation in Home Refrigerators"; "Heat and Vapor Movement on Refrigerated Packaged Goods"; and "Centrifugal Refrigeration Compressor for Aircraft."

The research conference on Monday morning will be on "Mechanics and Chemistry of Hermetic Systems," it was announced.

Second technical session on Monday afternoon, will include papers on "Refrigeration Techniques for Very Low Temperatures"; "A Mechanical Refrigeration Process for the No-Loss Storage of Liquid Hydrogen"; and "Hydrogen Liquefaction by a Dual Pressure Process," it was added.

Tuesday morning, June 4, will be given over to a Domestic Refrigerator Engineering Conference and an Air Conditioning Conference. Subject at the refrigerator conference will be "A Discussion of Desirable Modules for Household Refrigerators and Freezers." At the air conditioning conference it will be "How to Reduce Residential Heating and Cooling Costs."

On Tuesday afternoon there will be six forums, round-table discussion groups on subjects to be announced at a later date.

Final day, Wednesday, June 5, will be devoted to two technical sessions. The one in the morning will include the following papers: "Heat Transfer Rates from Heated Horizontal Tubes to Trichloromonofluoromethane"; "Capillary Two-phase Flow"; "Simple Selection Method for Capillaries—Derived from Physical Flow Conditions."

Final technical session on Wednesday afternoon will include the following papers: "Electrical Insulation and the Hermetic Motor"; "Energy-flow Analysis of a Refrigerated Structure Complex via Resistance Concept"; "Molecular Sieve—A Refrigerant Desiccant"; and "A New Principle for Automatic Defrosting."

Industry Effort To Aid Coleman In Gas Conditioner Program Push

WICHITA, Kan. — The Coleman Co., Inc., recently reported that total sales last year were $39,445,302 with a net profit of $28,719.

Earnings in 1955 were $1,277,850 on sales of $42,014,966.

Sheldon Coleman, president and general manager, said sales of civilian goods—heating and air conditioning equipment and outdoor appliances—were slightly higher in 1956 than in 1955 but were not enough to offset the drop in military aircraft production.

Regarding product development, Coleman noted that "one special factor should be reported.

He said that the company during the past five years "has spent over one million dollars in a major research effort to find a better way to cool homes with gas. While progress has been made, the project has not been completed and has obviously proved a costly one.

"Gas industry leaders and the American Gas Association have discussed with us ways and means of greatly accelerating their research and development work necessary to bring to the market a satisfactory gas air conditioning unit.

"The cost of such an accelerated program is beyond the means of any one company, but may well be undertaken by the gas utility industry which is most anxious to have available a marketable product at the earliest possible moment.

"Thus, while our expenses in this area will be reduced, total industry effort on the program will be increased substantially during 1957 according to present planning."

The decline in Coleman Co. earnings was primarily attributed to a sharp drop in new home construction resulting in severe price competition within the heating and air conditioning industry.

Other contributing factors were higher labor, materials and selling costs, and heavy expenditures for research and product development, it was stated.

While earnings dropped to the lowest point in more than a decade, the company paid regular 25-cent quarterly dividends and reported a net worth of $22,068,446 at the close of 1956.

"Our balance sheet is in sound condition, and we anticipate no deterioration in working capital or in financial ratios in 1957," Coleman declared.

The company spokesman looks for a slight upturn in sales but cautioned against any dramatic improvement in the face of the continuing decline in new housing and in market conditions generally. "Competition will remain tough and the price war will still be on," he said.

Canadian and International operations should continue to prosper, he added, while sales in the United States should increase due to "some outstanding new products we are introducing into growing markets."

To improve the profit picture the company has stepped up its efforts to reduce costs in all divisions; strengthen quality control procedures; reduce inventories, and generally increase operating efficiency.

Coleman reported inventories had been reduced by $1,098,580 last year and that a reduction of at least $1,000,000 is planned for 1957.

The company paid the regular dividend of 25 cents a share for the first quarter of this year.

Wetmore Hodges Dies

PALO ALTO, Calif. — Wetmore Hodges, 69, industrialist, who organized the General Foods Co. and General Seafoods Corp., and with Clarence Birdseye, developed the Birdseye food freezing process, died recently in Palo Alto hospital after a heart attack.

let's talk cents

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COSTS NO MORE...

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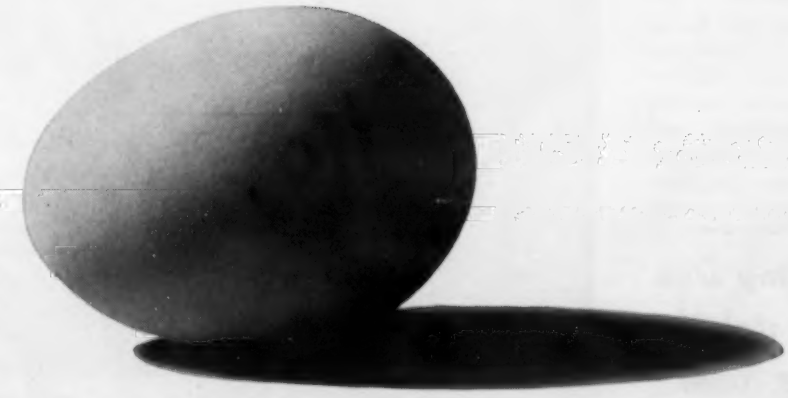

THE ONLY WAY TO TELL A GOOD EGG IS TO BREAK IT OPEN AND TRY IT!

Now's the time to find out if good Bendix-Westinghouse compressors are as good as we've been telling you they are. Give us a trial order. Test them in your units this summer. Prove to yourself that the quality and dependability we've been talking about are really there!

Nobody wants all his eggs in one basket if he can be sure he can depend on the second basket. Our claim is that our product is a good product, that our company is a good company, that our price is a good price. You already know that the company is good and that the price is right.

Trying it is the only way you're going to find out about the compressor. Many manufacturers have already done so. The results have proved to them as they will to you that Bendix-Westinghouse compressors are dependable.

Call John Morrill, General Manager, or Don Wood, General Sales Manager, to get a trial order going now for summer test. Telephone HArrison 4-6471—Evansville, Ind. Evansville Division, Evansville 11, Indiana.

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EVANSVILLE DIVISION of
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Automotive Air Brake Company

For more information about products advertised on this page use Information Center, page 28.

York Central District Trains Cooling Sales, Service Men In Advance of Season

CHICAGO — To increase the number of trained air conditioning sales and service men available for the 1957 season, the central district office of York Corp. is currently conducting a series of application engineering courses and service meetings in key cities throughout the Great Lakes area.

Though the instruction is based on York products, stress is placed on fundamentals that have general application. The schools are open to all dealer sales and service personnel, according to John L. Roth, district manager for York's commercial division.

A new six-week application engineering school is starting in Detroit on Thursday, April 25 under the sponsorship of York-Detroit Wholesalers. This will be the second such school staged in Detroit.

Murphy & Miller, Inc. here is conducting an eight-week course that is still in its early stages. Classes meet on Monday evenings.

Dates were not yet available for a second school to be held in Milwaukee by York-Wagner Distributors.

Other application engineering schools have already been conducted by Sanborn Electric Co. and Schilling Chilling Co. in Indianapolis and Great Northern Distributors, Inc., in South Bend, Ind.

Service training meetings, which are complete in one evening session, are still to be held here and in Saginaw, Mich. Saginaw Distributors will hold meetings on April 24 and 25.

Murphy & Miller here has scheduled service meetings for April 22 and 29 and May 6, 13, 20, and 27. The April meetings will be devoted to Minneapolis-Honeywell and General cooling controls. May meetings will cover York air conditioning units and maintenance program.

There is no charge for attending the service meetings. Distributors are making charges of up to $10 for the application engineering schools. This money, however, is refunded to those who successfully complete the course.

H. F. Schaefer, York district sales supervisor, is responsible for setting up the fundamentals for all the schools. He starts them off and personally conducts many of the sessions.

Service meetings are conducted by J. L. Buche and Howard Hull, both service supervisors for the central district. They present programs consisting of slides, handouts, and other data pertaining to the maintenance, installation, and general care of York products.

G-E Issues Price Cut On 2 Refrigerators

LOUISVILLE, Ky.—Price reductions on two refrigerator models and two models of its washer-dryer combination were announced by General Electric Co.

A company spokesman declined to give the amount of the cuts at the factory level but said that the reductions on the refrigerator models — LB-81P and LB-10P — would probably amount to between $20 and $30 at the retail level.

Reduction on the washer-dryer models — WD-560P (under-counter) and WD-660P (free-standing) — will range $25 to $30 at the retail level.

The spokesman also disclosed that the company was introducing an interim refrigerator, LK-11P, similar to model LM-11P.

St. Louis To Offer 100 Conditioned Buses by June 6, Hopes To Up Use

ST. LOUIS—One hundred air conditioned buses are to be put in operation on St. Louis streets by June 6, the St. Louis Public Service Co. announced.

St. Louis and several southern and southwestern cities have tried out small numbers of air conditioned buses in previous years, but this will be the largest fleet of local service air conditioned buses in the country, the company said.

The vehicles are designed to keep the temperature inside 10° to 15° cooler than outside. Cost of the air conditioning installation, being done in the company's own shops, is estimated at a total of $300,000, or about $3,000 per bus, the firm said.

Public Service Co. will begin feeding the air conditioned buses into seven of its 19 express lines about May 1. The seven lines, which will be completely air conditioned, use about half of the company's fleet of express buses.

John C. Baine, president, said the company instituted the air conditioning program "in hope of increasing the patronage of our express service."

Air conditioned buses will be used this summer in off-peak operations on shopper-express, Municipal Opera, and Red Bird (Busch Stadium) service, in addition to peak hour operations on the seven express lines. They also will be available for charter service during non-rush periods and on weekends.

Chicago Hearing Due On Environmental Unit Trade Practice Rules

CHICAGO—A public hearing will be held here April 24 on a set of proposed trade practice rules for the environmental equipment manufacturing industry, the Federal Trade Commission has announced.

The hearing, scheduled to begin at 10 a.m., will be held in the LaSalle hotel. All interested parties will be given an opportunity to present their views, suggestions, or objections. Views submitted in writing must be filed with the FTC not later than April 24.

The industry for which these rules are sought consists of persons, firms, corporations, and organizations engaged in the sale of equipment designed to test the reaction and performance of products under varying environmental conditions.

It does not cover contractors who do not maintain facilities for the manufacture or sale of such equipment or those who merely install or repair such equipment.

Tecumseh
offers you a
THE COMPLETE COMPRESSOR LINE—ENGINEERED
Models B1516, B1613
1 HP, single phase, twin cylinder. 10,700 BTU rating. External mount, air cooled compressors charged with F-22. Primarily designed for self-contained air conditioners.
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1½ HP, single phase, twin cylinder. 16,500 BTU rating. External mount, air cooled compressor charged with F-22. Ideal for small attic installations, operated singly or in tandem.
Models B74T16, B21T18
2 HP, single phase, twin cylinder. 19,500 and 23,400 BTU ratings. External mount, air cooled compressors, charged with F-22. 2 HP compressors designed to broaden the central systems market.
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The Leader Serving Leaders In The Air Conditioning And
TECUMSEH PRODUCTS
EXPORT DEPT. — P.O. Box 2280, 24530 Michigan Ave.,

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SMI Members Plan 23% More Stores--

(Concluded from Page 1)

kets planned for this year, 17% will be relocations of present markets. In addition 7% of the stores will undergo major remodeling.

Joseph P. Mott, newly-elected president of the group declared that supermarkets invest more than $1.5 billion a year in new stores.

"We've created whole new industries in store fixtures, in refrigeration, in air conditioning," he boasted.

Kornblau found that 61% of the membership planned expansions. About 41% talked in terms of long range plans. For two thirds of them that meant in two or three years; for the remainder it meant within 10.

Kornblau reported that one out of six markets operated by members was added last year. Twenty-two per cent were added through mergers, as compared with 15% acquired that way in 1955 and 12% in 1954.

Fourteen per cent of the membership closed one or more stores last year. Most of these were smaller units. They represented 4% of all stores.

But for every store closed or sold, 21 were added last year.

Despite all these grand plans, however, Mott indicated that the membership was worried about expansion.

"We know that expansion has been vital to our industry," he noted. "Today, we may wonder if some of our expansion is not a reckless rush for volume without profits, for locations without consumer benefits."

Kornblau, in his study, noted a continuing trend toward more self service in supermarkets. He found full self service in meat departments of 87% of markets, in produce departments of 67% of the markets, and in grocery and dairy departments in 99% of the markets. Fifty-five per cent are completely self-service.

Kornblau reported that frozen food sales, exclusive of ice cream, averaged 4% of total sales, as compared with 3.5% in 1955.

He found definite signs that productivity of labor was increasing. This became apparent in sales per employe, grocery turnover, sales per sq. ft., and sales per man-hour.

Mott declared that the supermarket industry today is worth more than $5 billion in plant, property, and equipment. It sells $6 out of every $10 worth of food in the country.

ASHAE Region 4 Meeting To Highlight 'Technical Know-How Bottleneck' May 6

LOS ANGELES — Program for the Region 4 meeting of the American Society of Heating & Air-Conditioning Engineers, to be held at the Ambassador hotel here Monday and Tuesday, May 6-7, has been issued by Russell C. Taylor, general chairman of the committee on arrangements.

Gordon, Queer To Address Group

ASHAE President Peter B. Gordon and ASHAE First Vice President Elmer R. Queer will both be in Los Angeles to address the meeting.

Region 4 covers seven western states. The meeting is for members of chapters in Seattle, Spokane, Portland, Salt Lake City, San Francisco, Sacramento, and Phoenix. Wesley O. Stewart of Los Angeles, regional director, will preside.

Subjects To Be Discussed

Subjects on the program include application of air conditioning for schools, control of air-borne sound transmission, recruiting personnel for the industry, symposium on air conditioning of existing buildings, "Our Bottle-neck — Technical Know-how," future of energy sources, investigation of filter systems for removing irritants from polluted air.

A personal invitation to attend the meeting has been sent to every ASHAE member in region 4 by Southern California chapter President Hank F. Ulovec.

Held Same Week As Western Show

The invitation points out that the meeting will be held the same week as the Western Air Conditioning, Heating, Ventilating, and Refrigeration Exhibit at Shrine Exposition hall May 4-8.

Heads of committees appointed by President Ulovec to host the meeting include General Chairman Taylor; William L. Holloday, program arrangements; Gerard Bloch, arrangements; Clay T. Snider, banquet arrangements; Robert T. Wilkerson, attendance; Harry F. Haldeman, special invitations; John L. Blake, special events; Mary C. Wong, ladies' events; Robert W. Thomas, finance; and John R. Hall, publicity.

Program Detailed

Here is the detailed ASHAE program:

MONDAY, MAY 6

9 a.m.—Registration.

9 a.m.—First technical session.

"Calculations Investigating the Application of Air Condition To a School," Frank M. Neal, Minneapolis-Honeywell, and Donald L. Williams, Holladay & Westcott. Presentation by Frank M. Neal.

"Control of Air-borne Sound Transmission," Jack B. C. Purcell, Bolt, Beranek & Newman.

"An Investigation of Filter Systems for Removing Irritants from Polluted Air," Neil Richardson, engineering research staff, University of California at Los Angeles.

Noon — Luncheon at Ambassador hotel.

"Recruiting Personnel for Our Industry," Harold P. Hayes, dean of engineering, California State Polytechnic college, San Luis Obispo.

2 p.m.—Chapters regional committee meeting. Wesley O. Stewart, director of region 4.

8 p.m.—Banquet in recognition of past chapter presidents. Peter B. Gordon, president of ASHAE, will speak on "Our Bottle-neck—Technical Know-how."

TUESDAY, MAY 7

9 a.m.—Second technical session—symposium on "Air Conditioning of Existing Buildings." Moderator, Cary B. Gamble, consulting engineer.

"High Velocity Air Systems," C. Milton Wilson, Anemostat Corp.

"Individual Chilled Water Units," Albert Hanson, National Refrigeration Co.

"Individual Package Units," Frank White, Chrysler Airtemp.

"Weathermaster Systems," Maurice J. Wilson, Carrier Corp.

"Conventional Air-Duct System," Clancy W. Pollock, Drayer-Hanson.

Noon — Luncheon at Ambassador hotel.

"Future of Energy Sources," Professor Elmer R. Queer, first vice president of national ASHAE.

2 p.m.—Chapters regional committee meeting. Wesley O. Stewart, director of region 4.

8 p.m.—Informal dining and dancing at Moulin Rouge.

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complete line for year-around air conditioning, priced to expand your market!

By continuous improvement and expansion, Tecumseh hermetic compressors today represent the most complete and up to date line in the industry. And as an example of our constant cost reduction program, the Tecumseh 3 HP single phase compressor shows an overall price reduction of 24% since 1953 in spite of continually rising prices.

Tecumseh compressors effectively utilize suction gas to dissipate motor heat — run smoother and quieter — deliver full capacity at 90° ambient with a 45° coil . . . continue to cool even at 120°ambient or at 90% of rated voltage! Tecumseh mass production facilities offer economical choices of hermetic compressors in:

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- Internal and external mount models
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- Air or water cooled application
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- Choice of tubes, solder valve, or Rotalock Valve

ROTALOCK VALVE— Multi - position, detachable valve — permits positioning of suction and/or discharge connections at any angle throughout 360° while maintaining a positive pressure seal.

Your best interests are continually served at Tecumseh. Write your Tecumseh District Office for the best solution to your central system requirements today!

TO YOUR INDIVIDUAL SYSTEM REQUIREMENTS

SINGLE PHASE

THREE PHASE

Models JE200, JB200, JE300

2 and 3 HP, twin cylinder. BTU ratings from 22,500 to 36,000. All models except JE200 charged with F-22. Internal mount hermetic compressors available for air or water cooled operation. Designed for complete flexibility, along with economical mass production to fill the exacting requirements of the year-round aid conditioning customer.

Model FB500

5 HP, single phase, four cylinder compressor. 62,500 BTU rating. Charged with F-22. Fully hermetic external mount compressor for large residential air conditioning and similar applications.

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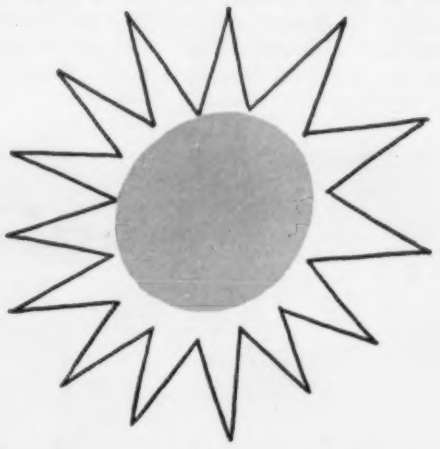
A NEW HEAT PUMP WITH LOWER INSTALLATION COSTS

THE CARRIER HEAT-PUMP



Exclusive "Climate-Balanced" design makes possible the first truly practical heat pump

The Carrier Heat-Pump Weathermaker is the first heat pump designed specifically for maximum efficiency over the whole year-round range of operating temperatures.

"Climate-Balanced" design does it. And here's how this exclusive Carrier feature further reduces costs:

You don't pay for more heating capacity than you'll ever need.

Operating costs will usually run much lower than other air-to-air type heat pumps. Two years of testing proved this.

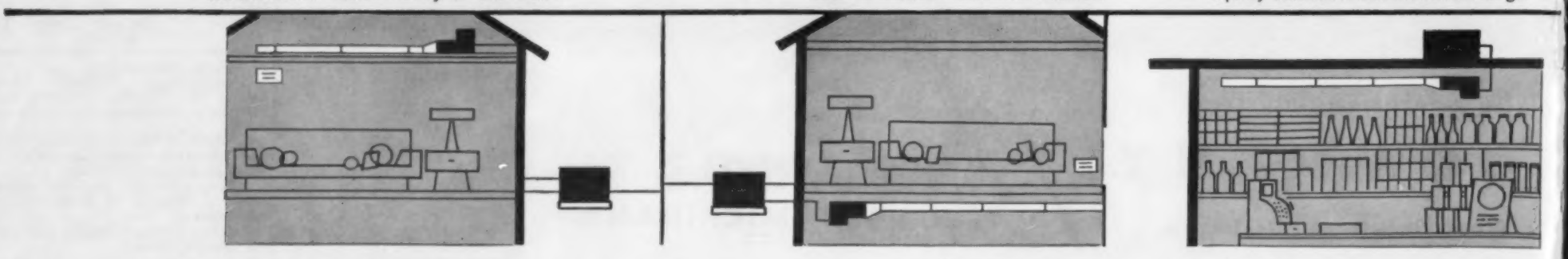
The two-section construction of the new Carrier Heat-Pump Weathermaker allows greater flexibility than ever before. The compact Indoor Section occupies no floor space within the house. The Outdoor Section eliminates the need for bulky ductwork to bring in air.

For more information on the Carrier Heat-Pump Weathermaker see the Carrier distributor listed in the Classified Pages of your Telephone Directory. Or write to Carrier Corporation, Syracuse, New York.

Indoor Section of the new Carrier Heat-Pump Weathermaker installs easily in the attic.

Crawl space of a split level or ranch house is another convenient location.

Carrier Heat-Pump Weathermakers are equally efficient in commercial buildings.



For more information about products advertised on this page use Information Center, page 28.

LOWER FIRST COST, AND LOWER OPERATING COSTS: WEATHERMAKER

Carrier Heat-Pump Weathermakers provide efficient year-round air conditioning using only air and electricity. Costs of fuel storage tanks and fuel lines are eliminated because they are not needed.

first name in air conditioning **Carrier**

For more information about products advertised on this page use Information Center, page 28.

Home Conditioning Distributor To Boom Ad Campaign All Year

PITTSBURGH — Possibly the largest residential air conditioning campaign ever run in this city has been started here by Shoemaker Bros., distributor for G-E domestic air conditioning, reports company advertising manager, Walter Shoemaker.

Shoemaker Bros., which acquired its G-E residential franchise on Jan. 13, 1956, plans to run its 600-line ad in *The Pittsburgh Press* once a month for an entire year.

A similar ad listing 24 franchised dealers located in Allegheny County, where *Press* circulation is high, was scheduled to be run each week.

Eye-catcher in the opening ad was an "Ad of the Month Club" insignia originated by the *Press* and Shoemaker Bros. and improving dealership participation in that this ad program is the only concentrated advertising on G-E residential air conditioning the dealer need do during the year, the distributor pointed out.

Prior to starting the ad campaign, Shoemaker Bros. completed a six-weeks' service school on air conditioning held every Tuesday evening from 7:30 to 11 at the company's Chateua St. warehouse on the North Side.

Average of 60 servicemen attended from area dealerships. Company engineer, William Albaugh, taught the service school using a G-E course, it was stated.

Shoemaker Bros. also planned to run an application school for six weeks, the company announced.

NWAHACA Technical Conference To Eye 'Future' In 2-Day Cleveland Session May 1-2; 15 To Discuss Conditioning

CLEVELAND—A look into "the future" will lead off the National Warm Air Heating & Air Conditioning Association's second annual technical conference in Hotel Cleveland here May 1-2.

Registration closes at 9:45 in Wedgwood ballroom foyer the morning of Wednesday, May 1, then the first technical session begins.

F. J. Nunlist, Jr., executive vice president, Mueller Climatrol Div., Worthington Corp., will preside. F. L. Meyer, president of NWAHACA and also of Meyer Furnace Co., will discuss "Research and the Future."

Continuing the session, W. H. Scheick, executive director, the Building Research Institute, will talk on the "House of the Future." R. J. Waalkes, application engineer, Hart & Cooley Mfg. Co., will close the morning session in the ballroom, covering "The Basis of System Designs of the Future."

After lunch in Whitehall, the second technical session opens in the ballroom at 1:30 with S. C. Marshall, manager, Sales Engineering Residential Div., Minneapolis - Honeywell Regulator Co., presiding.

Under the general heading "Problems in Estimating Operating Costs for Air Conditioning," H. C. S. Thom, chief climatologist, President's Advisory Committee on Weather Control, will discuss the "Climatic Factor."

R. A. Gonzalez, director of Technical Services, Airtemp Div., Chrysler Corp., will cover the "Human Factor," Dr. S. C. Hite, head of the department of chemical engineering, University of Kentucky, the "Humidity Problem," and Prof. S. Konzo, department of mechanical engineering, University of Illinois, the "Problem of Cooling the Upstairs."

Admission is by ticket to the 5 p.m. cocktail hour in Whitehall.

Third technical session opens in Wedgwood ballroom Thursday, May 2 at 9:30 a.m. with A. B. Newton, vice president-design research, Coleman Co., Inc., presiding. D. R. Bahnfleth, research associate, department of mechanical engineering, University of Illinois, will cover "The Use of Forced Attic Ventilation for Ceiling Heat Gain Control."

Following this will be talks on "Refrigerant-Flow Controls." E. P. Mikol, research section head, Carrier Corp., will discuss "Capillary Tubes." "Thermal Expansion Valves" will be the subject of a talk by J. A. Schenk, director of engineering, Alco Valve Co., it was disclosed.

Then, Warren Blazier, research engineer, Coleman Co., Inc., will discuss "Sound Control in Air Conditioning Systems."

Tyler S. Rogers, technical consultant, Owens-Corning Fiberglas Corp., will be guest speaker at a luncheon at 12:15 in Whitehall, the association indicated.

Fourth technical session in the ballroom Thursday afternoon opens at 2. W. E. Hood, director of engineering, Unitary Equipment Div., Carrier Corp., will preside.

General topic will be "Air Cleaning—An Essential of Air Conditioning." D. O. Bender, chief sales engineer, Research Products Corp., will talk on "Viscous Impingement Mechanical Type Air Filters." E. H. Evans, technical director, Amer Glass Div., American Air Filter Co., Inc., will then discuss "Charged-Media Air Cleaners," and G. F. Landgraf, vice president-engineering, Trion, Inc., will close the conference with a talk on "Electrostatic Air Cleaners."

UA Agrees To Establish Refrigeration, Cooling Divisions In Pa. Areas

READING, Pa. — Establishment of refrigeration and air conditioning divisions in certain areas of Pennsylvania has been approved by a convention of United Association business agents and business managers in that state, according to Ray Kromer, executive vice president of the Refrigeration & Air Conditioning Contractors Association.

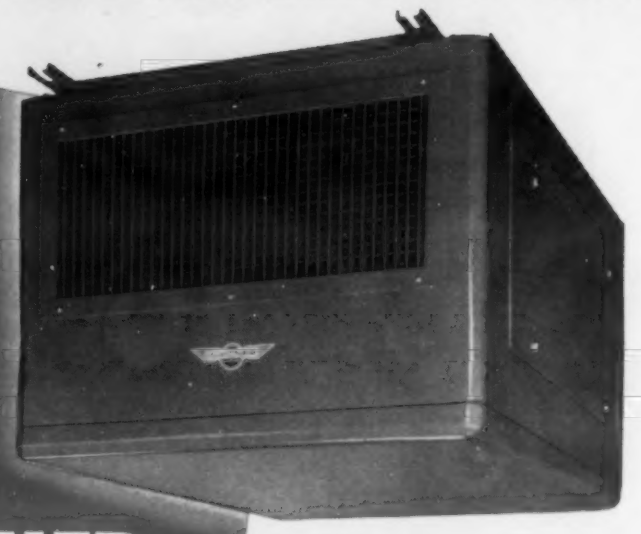
Kromer said that the convention appointed a committee to recommend the sections of the state in which these divisions will be formed.

When the areas are established, he added, joint industry committees may be formed and function to negotiate agreements and promote industry welfare.

For Looks • Long Life • Low Installation Cost

CHOOSE THE
LARKIN
(YEAR 'ROUND)
AIR CONDITIONER

5 MODELS—2 TO 10 TONS



Ideal for:
STORES BARS
SHOPS GRILLS
OFFICES RESTAURANTS
BAKERIES FLORISTS
CLINICS

Cools or heats • De-humidifies
Filters • Circulates Air

Here is Larkin's answer to the ever-increasing demand for year-round comfort conditioners. When you see it . . . when you compare it . . . when you price it . . . then you will understand why we say it is another triumph for Larkin—manufacturer of air-conditioning equipment for nearly 25 years.

See your wholesaler today for complete information about the all-new Larkin Comfort Conditioner. Write us for the name of the one nearest you—or for descriptive literature.

FEATURES THAT SELL AND SATISFY

- Larkin air-conditioning coil—eight fins per inch, continuous fin, staggered tubes, for highest efficiency and lowest operating cost
- Compact cabinet, all-steel, rust-resistant, beautifully finished with baked-on enamel
- Fiber-glass insulation
- Pressure-type, centrifugal, dynamically balanced, forward curved fan wheels
- Frictionless, self-aligning bearings completely encased in Neoprene
- Resilient base motors on adjustable mounts
- Two-direction, adjustable discharge grille
- Easily removed, throw-away filters
- Heating coils for use with steam or hot water
- Slotted hanger bars
- Easily installed, easy to service
- Backed by the engineering skill and manufacturing reputation of Larkin Coils—one of America's leading makers of commercial and industrial refrigeration and air-conditioning equipment

"Originators of the Cross Fin Coil"

LARKIN COILS INC.
519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

For more information about products advertised on this page use Information Center, page 28.

Suggests Improvements In Common Plant Heating Systems

Says Proper Make-Up Air Results In Reduced Production; Place Duct on Unit Heater To Draw Cold Air Off Floor

E. LANSING, Mich.—"It is time for engineers to design and sell heating and ventilating equipment on the basis of what it can do for the man located in the lower 6 ft. of the building rather than on the basis that it will introduce more B.t.u. into the building for less initial cost than their competitors."

That challenge was hurled by K. E. Robinson, ventilating engineer for General Motors Corp. at a forced warm air conference held at Michigan State university here. The conference was sponsored by the National Warm Air Heating & Air Conditioning Association.

Robinson spoke on the "Control of Make-Up Air in Industrial Plants," pointing up deficiencies in commonly used heating systems and offering suggestions on how they can be improved.

'SHOULD KNOW WHERE WHAT VELOCITY TO INTRODUCE AIR'

"Along with knowing how much air to supply, we must also know where and at what velocity it should be introduced and how it should be controlled," he said.

"Failure to properly provide make-up air can result in reduced production, personnel problems, illness, and even complete plant shut down."

He emphasized that he didn't mean to suggest that plants must provide so-called "comfort conditions for their employes. However, the Effective Temperature Chart does serve as a benchmark.

If we add upper and lower limits, we will have an indication of the well-being of the employes, he said.

"If we are interested in our people maintaining efficiency, then we will provide working areas that approach the comfort zone," Robinson asserted.

'ACCIDENTS TEND TO INCREASE BELOW 65° D.B.'

When dry-bulb temperature drops much below 65° F., accidents tend to increase, he noted. When effective temperatures are above 80° F., speed usually decreases and errors increase.

When the effective temperature exceeds 90° F., work can usually be carried on only one-third to one-half the time. The balance of the time is spent in resting.

Robinson demonstrated that in a condition of 65° F. wet bulb and 80° F. dry bulb, the effective temperature would vary from 72° F. to 60° F. depending on the velocity of air to which the man was exposed.

At 40 f.p.m., he said, the effective temperature would be 71° F., which is ideal for summer. At 100 f.p.m., the effective temperature would be reduced to 68° F., which is most desirable for winter months.

Although it is claimed that there is no additional value in moving air at more than 800 f.p.m., this is not agreed to by workers in some hot industries, he declared.

Air movement exceeding 3,000 f.p.m. is often insisted upon. In some plants, small high velocity jets are placed so that the employes walk in and out of the air pattern. Cooling effect is more noticeable with this arrangement, he claimed.

The typical unit heater in an industrial plant, Robinson explained, is supended near the ceiling above the building trusses. Ordinarily this type of unit is controlled by a thermostat which turns the fan on and off.

If steam is used, it is usually uncontrolled. If the unit is gas-fired, the burner comes on and off with the fan.

The warmest air in the room is forced through the heater and discharged at an even greater temperature. Although this is a common type of installation, it is inefficient and does little to create a comfortable zone.

One method of improving such an installation is to add a duct to the inlet side of the heater and extend it to approximately 1 ft. above the floor.

With this arrangement, the cold air is lifted from the floor, drawn up through the duct, and heated by passing through the heater. This results in the warm air being drawn to the floor to fill the low pressure area caused by the removal of the cold air.

Actual smoke tests prove, Robinson asserted, that a heater arranged such as this will provide comfort in the working zone under many conditions. This is of value in small buildings where light work is being carried out and little or no heat is generated by the operation.

Robinson stated that a unit heater with louvers that direct the air straight out gives a wide distribution of warmed air, and a good circulation is accomplished. However, when the thermostat is satisfied, the blower stops and stratification occurs.

It has been proven that when stratification does occur, a person at rest or doing light work, such as women working on inspection, will usually feel uncomfortable with only 1 to 1½° F. temperature change.

'KEEP AIR IN MOTION'

He pointed out that if the air can be kept in motion, a person, under the same conditions, can stand as much as 5 to 6° F. temperature change before feeling uncomfortable.

In many cases this problem in industry can be eliminated by varying the heat input to the heaters according to outside temperature and allowing the fan or blower to operate constantly during working hours.

Plants needing make-up air, Robinson said, can be recognized by a cold area around the entire inside perimeter of the plant, with an excessively warm and smoky area in the center.

The cold near the edge, of course, is the result of a high infiltration rate. To overcome this, the tendency is to continually increase the thermostat setting, with the result that the central part of the plants receives excessive heat.

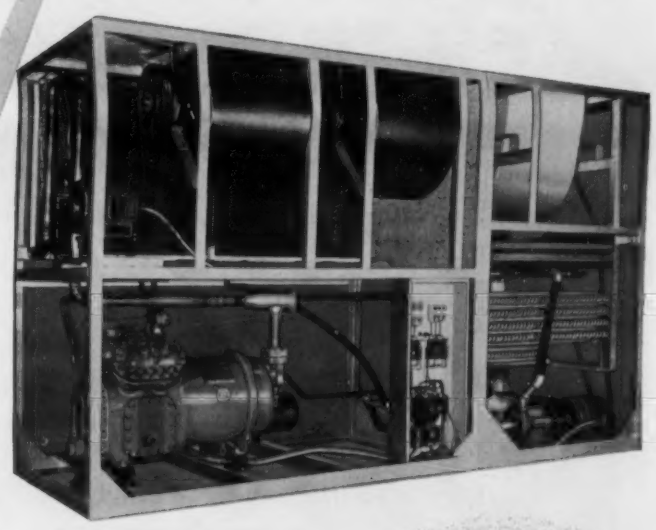
Providing make-up air not only increases comfort in the working zone and reduces smoke and fume, but also total cost.

Robinson closed his talk with a reminder that we do not need to heat the man. Rather we must control his rate of cooling if we wish to furnish him a desirable work environment.

BOHN Presents

the NEW ANGLE in Industrial Air Conditioners

Here is the completely packaged air conditioning unit for industrial or large commercial installations . . . with easily-accessible conditioner, compressor, condenser, and filter sections . . . completely engineered, assembled and tested in the factory.



easy installation

minimum operating expense

WITH BUILT-IN WATER SAVERS

- Semi-hermetic compressor
- All motors internally mounted
- Insulated conditioner section
- Bearings fed from outside oil cups
- Efficient quiet blowers, dynamically balanced
- 2-stage counter-flo type condenser, all prime surface
- Easily accessible electric control panel built into compressor section
- Heavy gauge bonderized steel cabinet with rigid access panels, easily removed
- Welded and braced structural steel angle frame, coated with rust-resistant primer
- Condenser blower, eliminator, spray tree and water pan—*all hot-dip galvanized after fabrication*

Models range from 5 through 60 H.P. and are available with standard steam, non-freeze steam or hot water heating coils, face and by-pass dampers, capacity control, increment starter and vibration rails.

For complete detailed information write today for free BULLETIN NO. 3000.

BETZ DIVISION BOHN DANVILLE, ILLINOIS

Manufacturers of Commercial Refrigeration. Industrial Air Conditioning and Special Heat Transfer Surface

BOHN ALUMINUM & BRASS CORPORATION • BETZ DIVISION • DANVILLE, ILLINOIS

Proposed Latch Standard--

(Concluded from Page 1)

labeled Public Law 930 of the 84th Congress.

"The requirements that have been incorporated in the proposed standard call for the most effective release mechanisms that it is practical to manufacture at this time," Weeks' announcement declared.

"Research and development are continuing in the household refrigerator manufacturing industry," he added. "This further research is expected to enable manufacturers of household refrigerators to exceed the requirements of the proposed standard.

"Changes can be made in the standard whenever justified by new ideas, techniques, and improvements in manufacturing know-how."

The proposed standard requires that new household refrigerators be equipped with a device enabling the doors to be opened easily from the inside, either with a push on the door or with a turn of a knob.

Study Child Reaction To Entrapment

Careful observations of children in a situation simulating entrapment indicated that most children attempted to escape by one of these two methods.

The standard specifies the accessibility and location of the releasing features. The force requirements specified for operating the release devices were arrived at after a careful study of the results of a study of child behavior.

That study was made last summer by the Children's Bureau of the Department of Health, Education, and Welfare in cooperation with the National Bureau of Standards and the National Electrical Manufacturers Association.

It provided important data for developing criteria for determining the suitability of release mechanisms.

Tests Specified In Standard

Tests are specified in the standard to evaluate the release devices. These tests cover releasing forces, the effects of wear resulting from repeated opening and closing of the refrigerator door, the effects of spillage of foods and beverages, and the effects of cleaning, defrosting, and condensation.

Text of the standard appears on page 40 of this issue.

A report on the child behavior study was also released by Weeks.

Two hundred and one children from ages two through five were tested under simulated entrapment conditions. They were equally distributed by age and sex. They were for the most part children of the staff of the National Bureau of Standards and the Diamond Ordnance Fuze Laboratory.

During the tests the children were lured into a small, dark "playhouse" enclosure by means of a movie cartoon. They were observed in apparently total darkness by means of an infra-red "snooperscope" and in many of the tests infra-red motion pictures were taken.

Sound recordings were made of vocalization by the children, and of comments by the observer on all tests. In certain tests measurements were made of the forces exerted by the children.

Time in the test enclosure, following entrapment, was short for most children. Three-fourths of those who released themselves were out in less than 3 minutes; one-third of these in less than 10 seconds.

A careful study of the test results revealed a wide range of behavior under entrapment conditions. Three main types of behavior stand out:

(1) inaction, with no effort or only slight effort to get out;

(2) purposeful effort to escape;

(3) violent action both directed toward escape and undirected.

Behavior for the two-year-olds was characteristically helpless, with little or no grasp of the problem.

Statistical analysis of the data showed that the success of escape was affected by type of release device, age, weight, and height of the child (but not the sex), and by the educational level of the parents.

It appeared that a higher rate of success was associated with fewer years of parent education.

Most Made Some Sort of Outcry

Most of the children made some sort of outcry while entrapped. Some older children, however, remained completely quiet, possibly with the idea that the film might start again. Of those who cried, some did so while making physical efforts to escape, others made no efforts.

The children recovered quickly from their brief entrapment and all left the scene of the test in a relaxed and pleasant frame of mind.

Some of the conclusions reached were:

1. Some children failed to engage in any form of physical activity whatever while entrapped. For this reason, it appears very unlikely that any release device will be 100% effective.

2. Of the children who failed to release themselves, unsuitable direction of effort was often observed, as:

Pushing on the door when release could have been effected by using a knob;

Searching the interior (seemingly, for a release mechanism) when pushing on the door would have been the proper effort;

Futile Efforts

Miscellaneous futile efforts, as:

Efforts directed at some surface other than the door;

Efforts of a proper type, but not applied hard or long enough to bring about release;

Efforts so random and diffuse as to be completely ineffective.

3. Because age, height, and weight taken together with the associated maturation process exert an appreciable influence on a child's ability to release himself, the youngest age group's needs should be kept in mind in designing releases.

The study noted that the number of children who lose their lives from suffocation in refrigerators is not great compared to deaths from other accidental causes.

But the horrifying nature of such needless deaths centers attention on the problem.

Although it is widely supposed that such fatalities almost invariably occur in abandoned refrigerators, a breakdown of existing information for deaths reported in 1953, '54, '55, and '56 by the Refrigeration Service Engineers Society and the National Safety Council indicates that just as many, if not more, deaths occur by suffocation in refrigerators in use or only temporarily disconnected.

Get Peak Filtering, Drying and Acid Removal at All Times...

with SPORLAN *Catch-Alls*

The FULL FLOW FILTER-DRIERS *that are installed in the* MAIN LIQUID LINE

Not in a By-Pass

Whether your job calls for sealed or replaceable core Catch-Alls... for refrigeration or for air conditioning installations all the way up to **100 TONS** Refrigerant 12, nothing matches the Peak Performance of the famous Sporlan molded porous Catch-All Cores.

They keep refrigeration and air conditioning systems so perfectly clean, perfectly dry and acid-free because... They cannot powder... they cannot pack

The refrigerant cannot by-pass or channel around them

They offer full flow capacity with negligible pressure drop through superior design

They are activated to a high degree of dryness, then sealed to insure Peak Performance when installed, so, for Peak Filtering, Drying and acid removal at all times... buy Sporlan Catch-Alls from your wholesaler today.

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EXPORT DEPT. AD. AURIEMA, INC., 89 BROAD STREET • NEW YORK 4, N. Y.

For more information about products advertised on this page use Information Center, page 28.

Amana Offers 4 Displays 'To Stop Traffic,' Pre-Sell Conditioner Lines

CARTOONS and copy on Amana Refrigeration, Inc.'s new "house" display illustrates the idea that a room equipped with an Amana room air conditioner is always "weather right."

AMANA, Iowa — Four new point-of-sale displays designed to stop traffic, demonstrate outstanding features, and pre-sell Amana Refrigeration's four 1957 lines of air conditioners, are being made available to dealers for the air conditioning sales season.

The displays are designed for dealer use on the sales floor, in windows, and at shows.

A 6-ft. display is built like a shingled house with a peaked roof and a weathervane. Two Amana room units—the budget-priced "Deluxe" and the "Year 'Round," eye-catching cartoons, and brief copy about each unit's selling features are displayed in the "walls" of the house.

Another display accommodating two units is a multiple steel stand which shows the Year 'Round and the "Slim-Lo," a "wall-thin" unit 15 in. deep, 18 in. high, and 27 in. wide. "Wings" of copy on each side of the stand list the units' major advantages.

Making visual use of a large-size thermometer which registers the "comfortably cool" constant temperature of 72°, a "Keep Cool" can be featured on top of any one of Amana's three room air conditioners, it was pointed out.

A "flasher" display, picturing a modern house, is available to show how Amana's "Air Command Central-System" air conditioner can be "installed anywhere!" Location of the self-contained, air-cooled unit and ductwork for either an attic, utility room, or basement installation is lighted by pressing one of three buttons. This display also illustrates some of the unit's features, such as "no-draft" diffusers, thermostatic control, and prefabricated glass fiber ducts.

Also ready now for Amana air conditioner dealers are sales promotion kits. Included in the kits are many items to aid sales.

New Wall Sleeve Eases Room Unit Installation

DAYTON—An improved wall sleeve for installing Chrysler Airtemp room air conditioners has won wide acceptance among company dealers, according to M. T. Bard, Airtemp sales manager of room air conditioners.

"The new sleeve simplifies in-wall and in-window installations of the 'Imperial 1800' room air conditioner series," he said. "Installation costs also are reduced by a considerable margin.

"In contrast to the former sleeve, the new version is much more versatile in its application. The former was used primarily in new construction."

The new sleeve, Bard noted, adapts easily to existing buildings and residences as well as new ones. An additional refinement in the sleeve is a new collar. This permits adjustment to the exact thickness of the wall, it was pointed out.

Airtemp Imperial room air conditioners are available in ½, ¾, and 1-hp. capacities. Eleven additional models for conventional and casement windows complete the line.

Admiral 'Rolla-bout' Permits Room Units To Be Moved, Rented

CHICAGO — A new "rolla-bout" stand introduced by Admiral Corp. for its room air conditioners "now makes it possible for even a woman to move a unit from room to room," according to Willis L. Wood, manager of the company's accessories division.

He said the stand can be used in apartments where tenants are not permitted to permanently install air conditioners or in hotels, motels, and commercial buildings with stone, steel, or tile sills and jams that cannot be drilled.

The stand permits dealers to make home demonstrations of air conditioners, and it also opens up a new field of room cooler rentals, Wood said.

SHOWN at left is back view of new Admiral "rolla-bout" stand which permits room air conditioners to be used in any room without permanent installation. Small picture shows front view of stand.

Built of steel with tubular legs, the stand rolls on ball bearing casters. It can be cranked from 24 to 30 in. from the floor to match any normal sill height. It contains adjustable vinyl fold side panels permitting the unit to be used in double-hung windows 28 to 42 in. wide.

Wood said that the stand saves the cost of installing a room air conditioner, removing it when winter comes, and then re-installing, and also eliminates the window washing problem when a unit is permanently installed. Suggested list price of the rolla-bout stand is $53.50.

To Build Air Conditioned Motel at Miami Terminal

MIAMI, Fla.—Ben B. Gaines, owner of the ocean-front Sahara motel, has announced plans for the construction of a $2,000,000 motel on LeJeune Rd. at the entrance to Miami's new 20th St. air terminal. The three-story, 200-room Miami Airport motel will be completely air conditioned.

ALL WITH MODERN MERCURY SWITCH DEPENDABILITY...
T-231
TWO-STAGE HEATING AND COOLING
T-99
COOLING THERMOSTAT
Optional Fan Control
T-241
TWO-STAGE HEATING AND COOLING
Automatic System Changeover
T-90
YEAR 'ROUND HEATING-COOLING
TEMPOTHERM 365
CLOCK CONTROLLED DAY-NITE, HEATING-COOLING
AMERICA'S MOST COMPLETE LINE OF AIR CONDITIONING THERMOSTATS!
118 FUNCTION VARIATIONS TO CONTROL ANY SYSTEM
• COOL, HEAT, FAN, AUTO, OFF, RESET SWITCHING FUNCTIONS
• SINGLE OR TWO-STAGE HEATING WITH SINGLE OR TWO-STAGE COOLING
• HEAT AND COLD ANTICIPATION
• DAY AND NITE CLOCK PROGRAMMING
• SINGLE DIAL OR TWO DIAL TEMPERATURE SELECTION
• MANUAL OR AUTOMATIC CHANGEOVER
For control of gas, oil, coal, electricity refrigeration, evaporative, chilled water and heat pump systems.
General Controls continues to set the pace in creating the kind of advanced design thermostats that afford the systems engineer maximum selectivity in air conditioning thermostats. Not only do General Controls thermostats please the homeowner by their beauty and simplicity of line, they also signify quality — and prove it by delivering the top performance engineered into systems and related equipment.
Consult your nearby General Controls office for complete details on the many air conditioning thermostats available.
You design it... we'll control it... automatically.
5 basic styles harmonize with any architectural or decorating theme
GENERAL CONTROLS
America's Finest Automatic Controls for Home, Industry, and the Military
Glendale, California · Skokie, Illinois
Five Plants — 48 factory branch offices serving the United States and Canada

Compression Boosts Glass-to-Metal Hermetic Sealing; Sees Advances Jumping Sales to $50,000,000 by '62

By J. H. Marsh, Jr., Vice President, Fusite Corp.

The past three years have seen the greatest advances to date in the field of glass-to-metal hermetic sealing.

In World War II, there were a few applications for this type seal based on Air Force and Signal Corps requirements. At that time, this sealing was expensive and used only when absolutely necessary to seal a component from outside atmosphere, foreign particles, and fumes.

It was in the post-war years the applications in the electronics and refrigeration industries really started. Even then, it was widely believed that glass was too fragile and required special techniques to bar breakage.

Like other industries, glass-to-metal sealing followed a pattern: first are the experimental years; then the test years for acceptance of the product and finally widespread production use. Today, this industry's total yearly sales are between $15,000,000 and $25,000,000. Since more firms are accepting this hermetic sealing idea every day, we estimate the industry might go as high as $50,000,000 within the next five years.

The first good hermetic seal was fine from a corrosion standpoint. It had also had excellent insulation resistance and flash over. However, the glass was fragile and had to be "babied" through a production line.

Our basic terminal, begun in 1943, had good heat shock, but was bad on insulation resistance. At certain temperatures, it was excellent. The heat shock factor made the terminal tough and as a result it came into wide use.

However, we did not consider this the ultimate in glass-to-metal sealing that might be developed.

In 1953, the compression type seal was introduced. As the name implies, this was formed under tremendous compression. When thus confined, it was unnecessary to have a heavy metal ring surrounding the body of glass to support the compression.

This glass gave off moisture which actually created an oxide on the metal parts. Neither the glass nor the metal absorbed the moisture. Thus, you have an oxide pack. This was a serious drawback. With this compression, the glass pushed against itself to form the hermetic seal.

Says Compression Seal Is Most Used

Since its introduction, the compression seal has made great strides and is probably the one type most in use today outside of the refrigeration industry.

One major reason for the success of the compression terminal is the inclusion of more electrodes in a smaller area than is possible with the individual extruded type. This has become a factor due to growing miniaturization of electronic components, particularly for aircraft applications.

However, there were still problems to be licked. It was necessary to find the right glass that would withstand tremendous mechanical and heat shocks without cracking. Our research team tackled this problem and, after some 50 experiments, came up with the right formula. We call this V-24 glass.

This glass combines both fusion and compression. Normal controlled compression techniques are used but, in addition, fusion is also applied. This results in an interbond of glass and metal or oxides at the point where metal and glass meet. This we believe to be the best combination of factors to produce a true hermetic terminal.

Calls Terminal Rugged

This new terminal is rugged. Since all the glass is confined within a metal ring to form a solid glass header, there is very little protrusion of glass above this ring. This makes the terminal crack free, stronger, and easier to use on the production line. This type is also being produced in individual extrusions where light weight and toughness are necessary factors. The method of manufacture eliminates the oxide pack problem.

To make sure the fusion, heat, and mechanical shocks all meet specifications, certain tests are used. It is still necessary to overcome the idea that glass is fragile.

Samples are taken at intervals from the fusion ovens. They are placed in an induction heat shock machine. On the metal surface — normally tinned for soldering on the production line —a Templstick mark of 500° F. is made. Heat is then concentrated at the terminal flange or the area normally soldered. In eight to ten seconds, the heat is applied. Then the terminal is allowed to cool to ambient temperature. It is then placed under pressure—the amount depends on its end use—and submerged in water for leak testing.

Tested to 400 P.S.I.

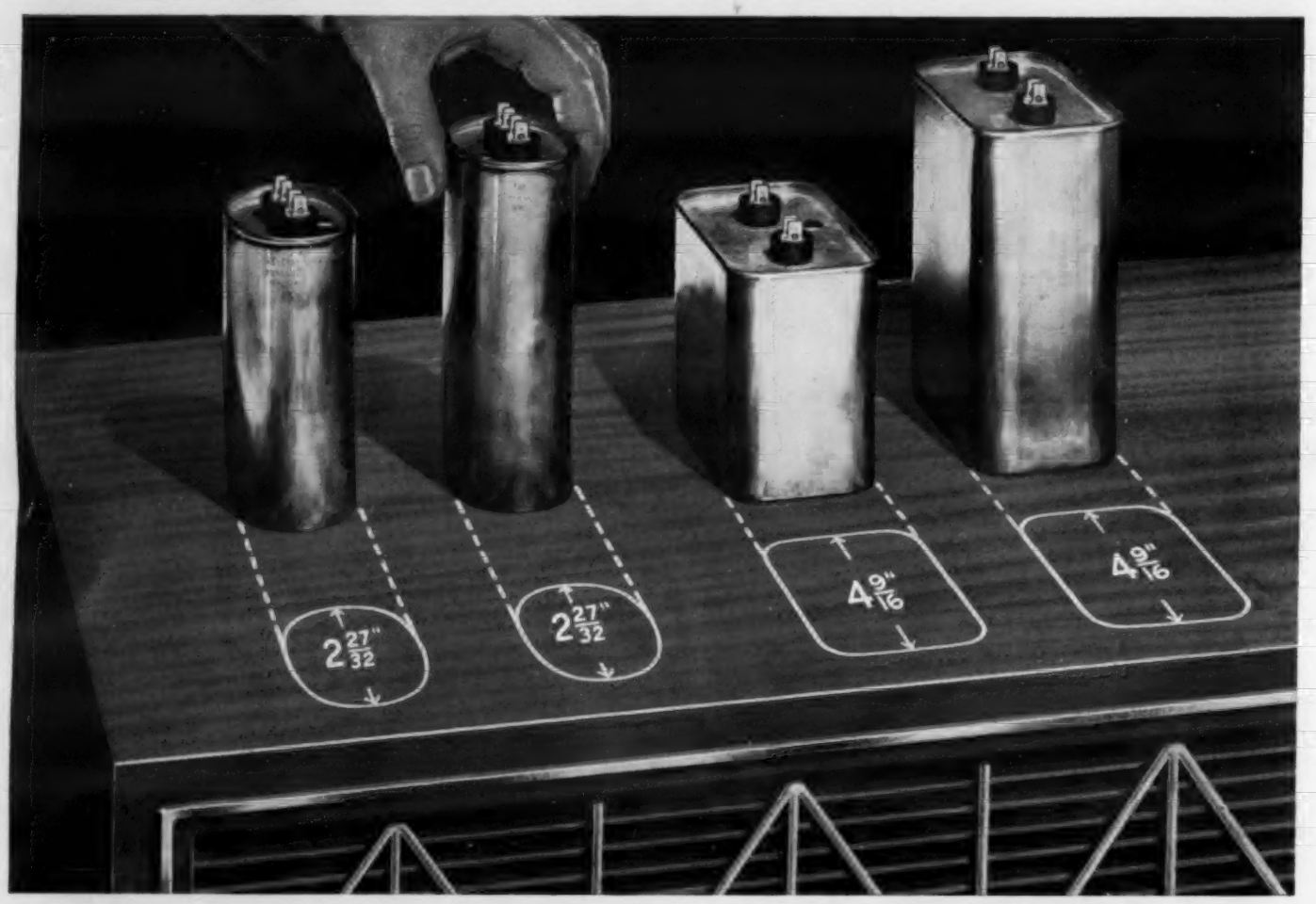
Other terminals, with thicker metal stampings, are tested to 400 p.s.i. before water submersion. After these shock tests, terminals are microscopically inspected for cracks.

Our experience indicates that terminals withstanding these tests can safely be placed into a production line without exercising undue care. In the field, it will withstand atmospheric differences and corrosion for many years.

The second major development of the past three years is the higher horsepower terminal for the refrigeration industry.

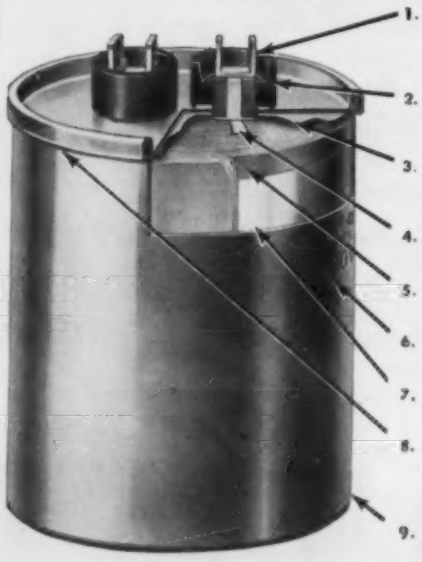
As the demand for hermetically sealed compressors rose, so did the use of hermetic terminals. Today, there are some 17,000,000 in use. However, these

(Concluded on next page)



New G-E capacitors for air conditioners give you more μf in the same base size

10 REASONS FOR USING G-E AIR CONDITIONING CAPACITORS



1. **QUICK-CONNECT TERMINALS,** single or double-blade type as well as fork type, are available.
2. **PHENOLIC CUPS** with silicone bushings increase creepage distance.
3. **BROAD UNDERCOVER INSULATION** increases internal electrical creep distance.
4. **AUTOMATIC TAP INSERTION** assures correct positioning.
5. **LOW-LOSS KRAFT PAPER** assures long life, high performance.
6. **AUTOMATIC FACTORY TESTING** assures reliability of rating.
7. **ALUMINUM FOIL** of high purity assures uniform quality.
8. **DOUBLE ROLL SEAM** assures leak-proof cases even under severe operating conditions.
9. **DRAWN SEAMLESS CASE** eliminates possibility of seam leaks.
10. **PYRANOL LIQUID IMPREGNANT** makes possible minimum size, highest quality capacitor for a given rating.

PROBLEMS OF HIGHER POWER FACTOR correction for new room air conditioners are minimized with newly designed, higher microfarad (uf) Pyranol* capacitors now produced by General Electric.

HIGHER CAPACITOR RATINGS have been achieved with minimum increase in capacitor size and with no increase in base dimensions. Thus valuable space is saved and installation of higher rated capacitors can often be made without expensive changes in existing air conditioner design and layout.

PROPER APPLICATION of General Electric capacitors will assist you in improving power factor of all presently manufactured air conditioners, including the new 2-ton sizes. Your G-E Sales Engineer has the training and experience to assure that you get the capacitor you need. He can solve your special problems concerning power factor and optimum capacitor space utilization.

DEVELOPMENT OF THESE NEW CAPACITORS is further evidence of General Electric's continuing progress in anticipating and meeting the expanding needs of the air conditioning industry. Whatever your requirements, you can look to General Electric for the high quality capacitors you want—shipped when and where you need them.

*Trademark of General Electric Co. 442-33

Progress Is Our Most Important Product

GENERAL ELECTRIC

AIRO stands for

Speedy, dependable, world-wide service.

Air Conditioning and Refrigeration parts, equipment, supplies.

Write for Wholesale Catalog No. 57

AIRO SUPPLY CO.

2732 N. Ashland Ave., Chicago 14, Ill.

For more information about products advertised on this page use Information Center, page 28.

Glass-to-Metal Sealing--

(Concluded from preceding page)

are confined to fractional horsepower units.

Cooling Demand Prompts Higher Hp. Unit

The growing demand for air conditioning units prompted the need for higher horsepower terminals. To meet this, a terminal was developed similar to the fractional horsepower units but with added glass extensions on the outer surface. This has successfully met various Underwriters' Laboratories specifications due to higher flashover characteristics.

Since normal wire is not sufficient to carry these higher horsepowers, it is necessary to use an electrode made of an eighth inch diameter 446 alloy wire plus a copper cord running the length of the wire. With this copper cord, the terminals will carry 55 amps at 230, 440 volts well.

Now, horsepowers of 3, 5, 7½, and 10 can be carried. This opens up the majority of air conditioning units for the home to hermetic sealing for another advantage of the final user.

Future of Hermetic Sealing

Glass-to-metal fused terminal developments are tied to two things: better glass and growth of the electronics industry.

The electronic industry is still in its infancy and it is this very growth that has made it necessary to build a better terminal. Proper techniques cannot always be transferred to the right people. The result is the necessity for a terminal that can withstand every conceivable type of abuse yet still perform satisfactorily.

3 Types of Glasses

Our production glasses today are three types: V-24, No. 47, and No. 74. The V-24 is basic to the compression terminal. No. 47 is used with a steel stamping, individual extrusions and a mild electrode for better conductivity. It is finished by electro tin plating or hot solder dip.

The No. 74 glass is a combination of the V-24 and No. 47 glass. Its insulation resistance is 100,000 megohms at 100° C. This glass can be used with a steel ring and either a mild steel electrode, 446 alloy, or an upper cord electrode.

Compared with a few years ago, these are high standards. Yet we have requests for glasses to withstand 200,000 to 300,000 megohms resistance at 500 to 600° F. Ambient or operating temperatures in this range must have heat shock characteristics far in excess of terminals in use today.

When these temperatures are finally achieved, it will be necessary for electronic users to revert to resistance welding of the terminal to the component instead of the soldering used today. This also applies to lead wires to the terminal electrodes. Today, terminals are furnished that are heliarc welded into the component. However, the glass portion of the terminal is far enough from the welding process to let the heat dissipate.

There is a rising demand for individual extruded light stamped type terminals. This is based on weight consideration—a big factor in high altitude aircraft and guided missles. Characteristics of the compression type must be built into these. Compression types can be miniaturized since more electrodes can be placed in the glass. In a light stamping, there is more area of metal.

Cost is another factor. In the compression type, there is one screw machine ring, one piece of glass, and the required number of electrodes. There is much less handling than with an individual terminal where there is one stamping, one bead, and one pin. Where a number of pins are required, these must be hand assembled.

Future development will undoubtedly meet the new requirements. The industry has advanced rapidly until today there are terminals that can withstand practically any production line, have better mechanical shocks, better electrical qualities, and higher temperatures.

They have cut manufacturing costs by as much as 25% as compared with previous old style sealing methods. They are free of surface cracks before and after use. They have good salt spray requirements and can be tested prior to use by simulating heat shock production procedures. They can pass mass spectrometer tests and remain leak tight under abnormal abuse.

They are tough because the oxide pack nuisance has been eliminated. They can pass MILT-27 C and B5757 military requirements for humidity cycling and salt spray. The end result is a practically trouble free product.

And the development end is not yet in sight.

Electric Motor Service Shops In 2 States Form NISA Groups

ST. LOUIS — Trade associations of electric motor service shops in Connecticut and in the western Missouri-Kansas area have been organized by members of the National Industrial Service Association, Inc., it was announced here by NISA.

The new Connecticut Chapter of NISA was formed recently at a meeting at Town House Restaurant in New Haven. William P. Palmer, Jr. of Palmer's Electric Motor Repair, Stamford, was elected president of the group.

Other officers are John Ingram, Jr., Schultz & Ingram, Inc., New Haven, vice president, and George L. Thomas, Electric Motor Repair Co., Waterbury, secretary-treasurer. The officers comprise a board of directors along with Al Lebowitz of Hartford Electric Machinery Co. and Mathias Palmer of Palmer's Electric Motor Repair, Stamford.

The regional association of firms in western Missouri and Kansas will be known as the Heart of America Chapter of NISA. It was organized at a meeting in Kansas City of more than 20 owners of shops in cities located throughout the chapter's area.

Officers of this chapter are Roy Kornfeld, Kornfeld-Thorp Electric Co., Kansas City, Mo., president; James A. Covert, Covert Electric Machinery Co., Joplin, Mo., vice president; and A. C. Johnson, Johnson Electric Motor Service, Great Bend, Kan., secretary-treasurer.

Packed and protected in sturdy, easy-to-handle cartons. 50 or 100 foot coils.

CHASE® extra soft copper refrigeration tube

Even in close, cramped spaces, Chase Copper Refrigeration Tube works easily, bends easily—thanks to its extra-soft temper. Inside and outside surfaces are clean, bright, oxide free. Crimp-sealed ends keep out moisture, dirt and air. Chase copper tube and solder-joint fittings form the finest system in the business!

Chase Copper Refrigeration Tube coils in sizes ⅛" to ¾" are packaged in individual and master cartons. Perfect for storage identification and shipment.

Available in both 50′ and 100′ length coils.

Chase®
BRASS & COPPER CO.
SUBSIDIARY OF KENNECOTT COPPER CORPORATION
WATERBURY 20, CONNECTICUT

The Nation's Headquarters for Brass, Copper and Stainless Steel

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L.I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

For more information about products advertised on this page use Information Center, page 28.

Westinghouse Air Conditioners are

Colorful....

New Style-Master packaged units are available in 15 handsome combinations of two-tone color, and harmonizing trim. Whatever the business—men's shop, hairdresser, furniture store, fashion salon, automobile showroom—and more—you can harmonize with any interior decor with this new Westinghouse line.

Best of all, you get this tremendous range of color with minimum inventory. Both the basic color panels and trim strips are readily interchangeable—they slip in or out in a jiffy. This means that you can give each customer the desired combination of colors with minimum effort.

Smooth-line styling makes the Style-Master units easy to install . . . with or without ducts. They are amazingly compact, fit flush-to-wall, in corner, behind counter or in storage area. What's more, they are *whisper* quiet . . . completely insulated cabinet, spring mounted compressor and vibration-free components all combine to give maximum cooling with a minimum of sound.

The sales appeal of the new Style-Master line is just one of the many good reasons why the Westinghouse franchise is valued as the "Franchise With the Future" by leading contractors and dealers throughout the country.

YOU CAN BE SURE...IF IT'S Westinghouse

AIR CONDITIONING DIVISION STAUNTON, VIRGINIA

J80538A

Westinghouse

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1, Col. 1)

they were being sent back to minor leagues.

Other two left the ballpark, and never returned to Detroit. Tebbetts dressed and sat on the bench to see what he could learn. It was a game which went 17 innings, and Cochrane used up all his pinch hitters. Almost desperately, in the 17th frame, he sent in Birdie.

Sure enough, the Bird doubled home the winning tally. And he didn't go back down to the minors, ever—until he became a manager. In 1956 he was voted Major League Manager of the year.

One of the things that sold Gabe Paul and Powel Crosley of Cincinnati on Birdie Tebetts as a manager was a scouting report he had made for Indianapolis. It was a meticulous job, and it had a page for each American Association boy of promise.

Of one rockhead Tebbetts had written:

"Major league stuff. Great arm. But screwy in the head. Eliminate head and I could recommend. Get good surgeon."

Up-to-Date Dope

To the White Sox 1957 training camp in Tampa, Fla., reported pitcher Don Rudolph. At the same time his wife, whose intriguing professional name is Patti Waggin, was performing in a Miami burlesque show.

Both were said to have exhibited good curves.

With Memphis of the Southern Association in 1956, Don Rudolph had a 3.19 earned run average. Figures on Patti Waggin are not at hand.

Although young Charles Van Doren thrilled America by winning $129,000 on a TV quiz show, knowledgeable baseball addicts question one of his answers.

"Name the only three major league players who achieved more than 3,500 hits" was the question. His reply: Ty Cobb, Cap Anson, Tris Speaker. It was accepted.

Fact is, both the answer and the question were wrong. Cobb had 4,191 major league hits: Speaker, 3,515; Anson, 3,081. Additionally Anson picked up 443 bingles in the defunct National Association, which by no stretch of the imagination could be called a major league.

So there are only *two* major leaguers in the 3,500-hit class—Cobb and Speaker.

In the Meantime, Back at the Ranch

Skyscraper Frank Sullivan (6 ft. 8 pitcher for the Red Sox) got off some nifties when speaking at Hot Stove League banquets last winter.

"There's nothing wrong with me that higher fences wouldn't cure," he deprecates. "However, Mr. Cronin believes I need a ceiling, too.

"Last year catcher Sammy White held up a game when the White Sox had loaded the bases on me, and sauntered to the mound. 'You're in real trouble, Frank-o,' he said.

"That wasn't news. I knew I was in trouble soon as Mike Higgins nominated me as the starting pitcher."

Without delivering a single pitch to a batter Jack Brown of Williamsport (Eastern League) won a ball game. Happened in 1956.

With two out in the eighth inning, two Allentown baserunners (and Williamsport behind 1-0), Brown entered as a relief pitcher. Immediately he threw out a man who'd strayed too far off second base. Third out.

In the home-team half of the inning he was removed for a pinch-hitter amidst a three-run rally which sewed up the game. Hence Brown became the winning pitcher without jousting a single hitter.

En route to the 1956 All-Star baseball game in Washington, Mr. and Mrs. Walter Stryker were struck by a hit-run automobile. As they lay helpless, but conscious, a witness came over to the stricken Mr. Stryker.

"Got any tickets to the game? You can't use them now."

Stryker sold him his pair of tickets, and the fellow rushed off without assisting the accidentees.

They Come In All Sizes

Explaining his battered nose, new (1957) manager Kerby Farrell of the Cleveland Indians says:

"My nose wasn't born like this. It's just lived hard."

Mathematically-minded Bob Oldis, Washington catcher, recorded that he received 1,315 pitches while warming up two starters and five relief pitchers during a doubleheader last year.

At the same time an accomplice clocked the receptions of Lou Berberet, who worked both games behind the plate. The latter gloved exactly 250 tosses in the same time-period.

Shalom Kahalny, marathon champion of Israel, ran 18 miles from Idlewild Airport to New York City Hall, carrying a flaming torch he intended to present to Mayor Wagner.

The mayor wasn't there. It was opening day of the 1956 baseball season, and Hizzoner was at Yankee Stadium.

Annoyed by loose paper blowing around the mound, Yank pitcher Whitey Ford stooped down and picked it up. It was a two-dollar bill.

Despite its connotations of bad luck, Whitey shut out the Red Sox that day in June of 1956.

So You Got Troubles?

It must have been 4 a.m. on an August morning, as Warren Giles recalls it, when a fan phoned him.

"Are you the general manager of the Cincinnati Redlegs?"

"Yes," Giles answered sleepily.

"Why?" hung up the fan.

Cleveland clubhouse attendant Al Shapanus gets a head start every time pitcher Early Wynn is removed from a game—and empties all the wastebaskets hastily.

"Saves me a lot of work," he explains. "That Wynn is so mad when he's knocked out of the box that he kicks everything in sight, including the waste baskets."

Enter the Newspapers

Annually newspaper writers in New York City present the Sid Mercer award to their choice for "baseball player of the

(Concluded on next page)

"Let's be Perfectly Frank"

ROUND OAK

heating and air conditioning

Sells Quality—not Guff!

We at Round Oak have always felt that our customers are our best salesmen. They don't have to rely on frills . . . or promises . . . they've seen with their own eyes!

Round Oak heating and air conditioning has always been engineered and manufactured with the customer in mind. Sell him once—and that's only the beginning of the feeling he has for you, and for the product.

A Round Oak customer today is your friend tomorrow . . . and for always.

BASEMENT MODEL LO BOY HEATING . . . GAS OR OIL FIRED
BEAUTIFUL "C" SERIES HEATING . . . GAS OR OIL FIRED
AIR-COOLED "CLIMA-TWIN-AIRE" REMOTE CONDENSER AND EVAPORATOR PACKAGES . . . 2, 3, AND 5 H.P. . . . NEW TWO-TONE "HI BOY" PACKAGE

ROUND OAK CO., INC.
DOWAGIAC, MICHIGAN

ROUND OAK CO., INC.
Dowagiac, Michigan

Gentlemen: Please rush me full details of the Round Oak heating and air conditioning line.

Name_____

Firm_____

Address_____

City_____ State_____

For more information about products advertised on this page use Information Center, page 28.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from preceding page)

year." Winner in 1944 was catcher Bill Dickey.

Although Bill had memorized a neat acceptance speech he forgot it when presented with the plaque.

"It sure is purty," is all he could think of to say.

"Newberger, mixing a good fast ball with a sharp-breaking curse, struck out seven."—*Buffalo Courier.*

Prime Crime News

Thugs broke into a dressing room and tried to rob a coupla dozen ballplayers. Wild melee ensued, and the burglars were lucky to escape with no broken bones.

Upon reconvening to divide the swag, Muggsy hoarsed:

"Probly wasn't worth it, but I see we picked up around a hunnert bucks."

"You kiddin?" snorted Buggsy. "We went in there with two hunnert."

Pole-axed by a beanball, Lou Novikoff ("the Mad Russian") was carried into the Chicago Cubs clubhouse. Secretary Bob Lewis contacted Andy Lotshaw, veteran trainer of the Cubs.

"Did you send Novikoff out for head X-rays?"

"Heck, no," Lotshaw gravelled. "We had the ball X-rayed."

Bob Feller Now Is a Legend

Practical businessman though he was and is, Bob Feller had a penchant for practical jokes. Carried firecrackers with him everywhere, for instance.

Perhaps he is best remembered, in that connection, with a trick he pulled on Satchel Paige in the Detroit clubhouse. Old Satch was a great ice cream lover, and ice cream sandwiches were available there.

Bob obtained one, removed the wrapper carefully, emptied the ice cream, substituted a whittled-to-size bar of soap between the sandwich wafers, and rewrapped it.

This little daisy he gave to Paige. The latter bit into it wolfishly, opened his mouth in surprise, and literally lost his teeth. His store choppers—upper and lowers—were embedded in the "sandwich."

"Aw, he ain't so fast," Rowdy Richard Bartell appraised Rapid Robert Feller, after blooping a single first time he faced him.

Next 16 times at bat against Feller in that Giants-Indians exhibition series Bartell struck out 13 times.

Mental Cruelty

Some say that no more nonchalant man ever existed than Joe Dugan of the Yankees. He was noted also for his devastating wit. Example:

There was a Subway Series (World) in 1923 between the Giants and Yanks.

With two men on and the Giants a run behind, Dugan strode to the plate. Jack Scott was the pitcher.

Dugan took his time. Likewise, Scott. It was one of those hitter-hurler out-waiting duels. Three times Joe stepped out of the box just as Jack was ready to throw. On the third occasion Dugan hollered:

"Pull in your ears, Scott. You look like a loving cup."

You can guess what that did to the pitcher. Joe Dugan teed off on a fast one and drove in two runs to win the match.

Dreams of Valor

Adopted son of Clark Griffith (Calvin) succeeded the patriarch of Washington, D. C. as president of the Senators upon Clark's death in 1955. Almost exactly 25 years previously Calvin had his biggest thrill. Clark Griffith was involved, too.

Young Cal played third base for Staunton Military Academy against a Washington high school on that day in 1930. The game was played in Griffith Stadium. Uncle Clark (who later adopted Cal) and other relatives occupied the best box in the house, natch.

At the end of 12 innings the game was tied. Cal had struck out four times and popped once, in five times at bat. He wept when his sixth turn came in the 13th inning, and saw the Staunton coach motion for a pinch hitter.

Noticing the tears, his coach gave him one more chance.

Frank Merriwell finish: Young Calvin tripled home the winning run.

There's One In Every Crowd

Incontestably Branch Rickey was the greatest orator baseball ever has known.

In in his seventies, when he attempted the practically hopeless task of doing for the Pirates what he'd done for the Cardinals and Dodgers, he spellbound a grim group of money-losing Pittsburgh directors.

All, that is, except minority stockholder singing star Bing Crosby.

"Excuse me, friends," Bing is rumored to have snorted, "while I find a string quartette to fiddle suitable background music for this."

Life Insurance Firm Builds Conditioned Regional Office

JACKSONVILLE, Fla. — The George Washington Life Insurance Co. has begun construction of a new five-story, $1,000,000 regional home office building at 135 Riverside Ave. The air conditioned structure will contain 10,000 sq. ft. on each of its five floors, the life insurance company indicated.

Higham Elected Tecumseh Vice President; Directs Operations at Marion

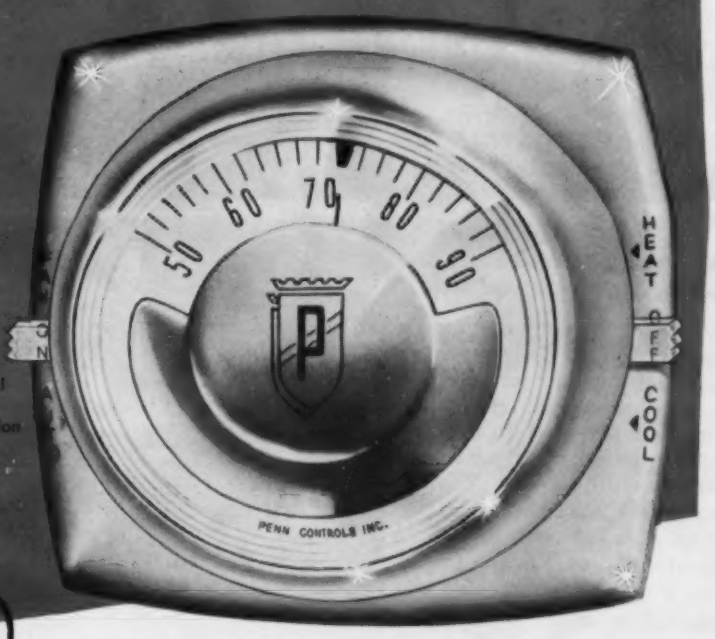
TECUMSEH, Mich. — W. W. "Bill" Higham has been elected a vice president of Tecumseh Products Co. He has been managing the Tecumseh plant at Marion, Ohio and will continue in charge of operations at this location.

Higham entered the industry as an engineer in the mid-twenties, and his experience encompasses practically the whole history of low pressure refrigeration systems.

At the time that Tecumseh took over the Universal Cooler operation in Marion, he was vice president in charge of engineering, and had the longest record of employment with that firm of anyone in the organization.

PENN "RIMSET" THERMOSTAT REDUCES YOUR INVENTORY

Now... the same room thermostat can be used for 12 different heating and cooling jobs... just change the sub-base!



Actual size illustration

APPLICATION	FAN SELECTOR SWITCH	SYSTEM SELECTOR SWITCH
HEATING ONLY	—	—
	—	AUTO-OFF
COOLING ONLY	—	—
	—	AUTO-OFF
	AUTO-ON	AUTO-OFF
	AUTO-ON	—
COOLING—with system interlock for separate heating thermostat	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-OFF-COOL
COMBINATION Heating-Cooling	—	HEAT-COOL
	AUTO-ON	HEAT-COOL
	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-OFF-COOL

HERE'S HOW IT'S DONE

You don't have to stock a different thermostat for each heating and/or cooling job! You just need one — the new all-purpose Penn "RIMSET" thermostat that quickly "plugs" into any sub-base required for the job. Inventory is reduced because you stock variables of the sub-base only!

Installation is simpler, too! Sub-base does not have to be installed in a perfectly level position for accurate operation. The adjustable heat anticipator and all wiring are on the sub-base where large terminals are easily accessible.

And, this beautiful room thermostat gives you new sales power! It has the largest, most easily read dial you've ever seen . . . and the scale remains stationary as the rim is dialed for the temperature setting!

Once you see this new, excitingly different thermostat, you'll want to specify and install it in all your heating and cooling jobs!

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 39th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

For more information about products advertised on this page use Information Center, page 28.

Selling for Profit—*(In Residential Air Conditioning)*

How the Salesman Can Use Dramatization, Demonstration, Sales Aids To Promote Sales

By Frank Klein

This series of articles is for those who seek to know the basic "appeals" and principles in selling residential air conditioning. This is the sixth article in the series which began March 18.

Frank Klein has been associated with the air conditioning and refrigeration industry for over 20 years. He has held executive sales positions with a number of air conditioning manufacturers. At present he is a partner in Heidenreich, Klein & Associates of Dallas, marketing specialist.

Don't expect your customer to buy a pig in the poke. He won't buy something he cannot see, touch, and feel. Whether this be taken in the figurative or literal sense, depends on your methods of approach.

In residential selling, reaching out for the existing and new homeowner market, you are doing business with people familiar in the ways of "sight and touch" buying. They are constantly influenced to buy products in the consumer field by visual, dramatic demonstrations of their value and benefits. DRAMATIZATION is the most effective way of establishing any point in any sales appeal.

You wouldn't think of walking down the street with a friend, and meeting another friend along the way, stop to talk to him without introducing your two friends to each other. Why should you then expect to sell your product unless you "introduce" your product to your customer?

Your product cannot, in so many words, speak for itself; you therefore have to speak for it, showing your prospect what it will do for him and how. Whatever context you put on this, it is DEMONSTRATION. The more you dramatize your demonstration, the more effective will be your score.

Objects of Product Demonstration

Main objects of any product demonstration are, to prove the benefits of your product and its value to your prospect; create a desire in your prospect to buy what you have to sell; to demonstrate its usefulness in the manner you have described, and to give him the full benefit of your krowledge of how he should use your product.

Rewards of a well planned dramatic demonstration of a product pay off in:

(1) Having your prospect remember the FEATURE ASPECT of your product.

(2) Allowing you to employ effective showmanship which will illustrate your knowledge of your product, thus creating confidence.

(3) Creating immediate interest on the part of your prospect.

(4) Emphasize on your product's sales and use appeal.

A dealer-contractor friend of mine said to me:

"I think I know now, why the caviar is no longer in the lunchbox. I've been standing in front of the barn with a baseball, and boy, what I need is a handful of BB shot. I've been standing all this time taking one shot at the barn when I could have been plastering the side with the same throw."

Now this kind of language to the uninitiated sounds like double talk. However, what my friend meant was, he had been concentrating on just one market of a limited nature, and with but one category of product. I replied:

"Then you are ready to believe what I said about diversification of sales being the "great equalizer?"

"It's finally sunk in," he smiled ruefully, "what's more the great convincer is my bank balance and turnover in labor."

"You are ready then too, to step into the residential consumer field; ready to balance your commercial air conditioning sales effort with residential cooling?" I questioned him.

"The only trouble is," my friend replied, "I'm going to need your help and advice in putting some of these high falutin' ideas like dramatic demonstrations and stuff you will you help talk about into actual practice, will you help?"

(Continued on next page)

FOR DIRECT-DRIVE ROOM UNITS, (A) permanent-split-capacitor or shaded-pole thru 1/6 hp; FOR DIRECT-DRIVE CENTRAL UNITS, (B, C) perm.-split-cap. thru 1/2 hp; FOR BELT-DRIVE CENTRAL UNITS, (D) cap.-start thru 3/4 hp at 1725 rpm, thru 1 hp at 3450 rpm, and (E) split-phase thru 1/2 hp.

For more information about products advertised on this page use Information Center, page 28.

Selling Residential Conditioning--

(Continued from preceding page)

Assemble Kit for Home Demonstration

Among the other training help I offered, I helped him to construct and assemble a "Home Demonstration Kit." This consisted of:

1. An adequate sized, neat appearing carrying case which he had built by a local luggage repair man.

2. In the case, sectional separators were installed which would hold:

A. An adequate amount of literature and sales aids which my company offered its dealers.

B. A small section of: (1) evaporator coil (which a manufacturer provided for the purpose; consisting of one row about 4 in. long, to show tube size and fin construction plus an air-cooled condenser coil (which a manufacturer also provided in about the same length).

C. A patented door-lock which my company used to secure its access panel construction.

D. A sample of the insulation used in both extended coil plenum box, which sat on top of the furnace, and to insulate the air-cooled condensing section cabinet.

E. A small white enameled tray about 8 in. by 6 in.

F. A cellulose sponge, commonly sold in the supermarket.

G. A section of cabinet steel used in the construction of panels and cabinets of my products. (Finished by my factory showing bare steel, the bonderizing coat, the primer coat, and the finish coat, all in steps.)

H. A small can of "Charge-It refrigerant."

I. A mounted photograph (which a local photographer made, then mounted and enclosed in a cellophane protector sleeve). showing four 1-gal jugs against a black background, three completely filled to the full mark with water, the fourth a little over half full.

J. One half of a small filter removed from a room unit which had been in operation for some time and was quite dirty. One half of the same size filter—but brand new and clean.

K. A small bottle of rubbing alcohol.

While this sounds like a cumbersome kit, contrarily everything fit very compactly, and after all my friend didn't carry his home-made demonstration kit from door to door and for an endless time.

Each article in the kit lends a dramatic demonstrating effect when explaining the BENEFITS to be derived from an air conditioning system.

Brief Reference To Each Article

Now for a brief reference to each article:

The Literature and Sales Aids: These of course need no explanation. Every manufacturer hoping to sell his product provides very often excess amounts of these things. They are the normal and natural selling tools.

The small section of cooling coil: With this the customer can actually be shown the "tube" through which the refrigerant flows, and the radiating fins used for heat transfer in the secondary and primary stage. It also shows what a "row" looks like when you talk about the superior number of rows deep your coil has as compared to a competitor. It also shows the quality of manufacture, etc.

The small section of air-cooled condenser coil: This is used of course to explain the "other coil" function and place in the system, not withstanding quality, etc.

The sample door lock: This was of course peculiar and applicable to the equipment which my friend sold; it was one of the Feature Aspects, by which he could explain the superior quality and workmanship, as opposed to a manufacturer who attached his closure in a conventional manner.

The sample of insulation: This of course illustrated the quality, design, and cost expended on preserving the cooling accomplished within the system, as well as the steps taken to prevent condensation on exterior surfaces, with subsequent possible damage to both equipment and surroundings.

The small white enameled tray and cellulose sponse: What better way can you think of than to take this tray, fill it with water, soak the sponge, and wring it out slowly before a customer's eyes as you talk about humidity, moisture, etc.

The section of cabinet steel, finished in steps: This of course is a bid to back up a story on quality. The gauge, the steps in finish illustrate the benefits in owning; a bid for quality insuring endurance.

The small can of refrigerant: When the nozzle is depressed it can illustrate both by sight what refrigerant "looks" like when expanded into a gas; when held the proper distance away from the customer's hand (be careful) it's immediate freezing ef-

(Continued on next page)

simplify your design problems

G-E motors tailored to your air conditioner and produced on schedule help you develop and market new products faster!

General Electric "Form G" fractional-horsepower motors can help you improve the design of your new air conditioning units and get them into production faster because:

1. **THE RIGHT MOTOR** is available from General Electric *now!* The motors at left are typical of the complete line of General Electric motors designed specifically for the high power factor and efficiency you want. If you require modifications to solve a specific design problem. . .

2. **GENERAL ELECTRIC APPLICATION ENGINEERS** are ready to help you get the best motor for your product, commensurate with performance and cost requirements. And. . .

3. **ON-SCHEDULE DELIVERY** of General Electric motors helps get your new product into production without delay. As for quality. . .

4. **"YEARS-AHEAD" G-E DESIGN** has been proved by the outstanding record of millions of motors put in use since G.E. pioneered in the design of smaller, lighter motors five years ago. You get more dependable motor service and greater customer satisfaction from such G-E features as: a bearing system that needs no re-oiling for summer cooling use; an insulation system of Formex* wire, Glyptal* alkyd-resin, and Mylar† polyester film that is virtually unaffected by moisture and humidity.

You can simplify assembly, too, with such features as the "quick-connect" terminal board and "clip-on" terminals which speed hook-up.

These are only a few of the many G-E motor benefits that will help to keep your new design program on schedule, and improve your product as well. If you'd like to get help on a specific problem, contact your nearby G-E Apparatus Sales Office. For more information on "years-ahead" G-E motors, write for Bulletin GEA-6424. General Electric Co., Sect. 702-56, Schenectady 5, New York.

*Reg. trade-mark of General Electric Co.

†Reg. trade-mark of DuPont Co.

GENERAL ELECTRIC

APPLICATION HELP from G-E engineers familiar with your problems assures you of the best motor for your requirements.

ON-SCHEDULE DELIVERY of the motors you need is the result of General Electric's flexible, multi-plant manufacturing facilities.

LOCAL SERVICE is provided by G.E.'s nationwide network of Small Motor Service Stations—listed in the "yellow pages."

Selling Residential Conditioning--

(Continued from preceding page)

fect dramatically points up temperature for heat transfer.

The mounted photograph of water jugs: My friend used this photo of these jugs and their contents to dramatically illustrate that for each 6,000 B.t.u. or one-half ton of refrigeration effect, 3.6 gals. of water can be removed from the air depending on the temperature and humidity.

The sections of filters: These dramatically showed the function of filtering the air, removing dust, dirt, and grime. The contrast between the clean one and the dirty one point up the housewife benefits, etc.

The bottle of alcohol: This was used to illustrate evaporation and the evaporative effect of moisture from the skin when in an air stream.

The total and important fact in this whole effort lies in the ability, through "props" to explain the technical operation and effects in not only a layman's language but by SIGHT as well. PROPS for a DRAMATIC DEMONSTRATION.

Such dramatic demonstrations in the prospect's home both impress him as well as condition him for an approach to making it possible and interesting for him to visit your place of business and actually see your equipment on display. This is an old switch-back to "showroom selling."

A nationwide survey in 1956 successful salesmen, having access to a showroom and display of products, shows that better than seven out of 10 sales made to the consumer in the existing home field, were made in the showroom. Their approach?

Sales Approach In the Showroom

1. Creating desire by a personal home call on the prospect.
2. Making a home presentation of their product and system, aided by dramatic demonstrations.
3. Bringing their prospect to the showroom for a close.

WHEN YOU SELL WITH DRAMATIC DEMONSTRATION, YOU SELL WITH AN EMPHATIC BID FOR TRUTH AND CONFIDENCE.

Through demonstrations you can:

1. Prove the value of your product, thus effectively emphasize benefits.
2. Create a desire in your prospect's mind.
3. Illustrate the usefulness and useability of your product.
4. Show your prospect how to use your product.

An amusing, yet true story on dramatizing a sales point, is a story I heard concerning a real live-wire commercial refrigeration salesman of Frozen Food Merchandising Cases.

This salesman had a real tough customer in a supermarket operator, who he learned, through various means, really needed a significant installation of a number of new cases to replace those he owned and had operated for over a period of years. He simply couldn't impress the prospect that in reality the operation of the old equipment, not withstanding continuing to own it, was costing him many dollars a day which could be put to use in purchasing new and more efficient equipment.

'Dramatizing' a Sales Point

The salesman finally got his prospect "cornered" one morning and he immediately launched into his story on the economy of replacement. The conversation went something like this.

"Mr. Blank, I've called on you a number of times and I have tried to convince you that in reality, this equipment you are now operating—just a moment, Mr. Blank, and excuse me for a minute." Here the salesman walked to the nearby street door, and reaching in his pocket, pulled out a half a dollar and threw it out the door onto the outside sidewalk. He hurried back to the market operator, and though noting the look of incredulity on his face started talking again before the prospect could question him.

"I'm sorry Mr. Blank. Let's see now—yes, once again may I take just a moment to review the facts and figures I have prepared for you proving the benefits, both in economy and efficiency, you and your operation will receive through buying and installing this new equipment of mine."

The "look" hadn't left the prospect's face yet, and before he could be interrupted, the salesman said: "Just a moment again Mr. Blank, excuse me." He then rushed quickly for the door again and pulling out another half a dollar, threw it out the door and returned.

This time, the prospect was about to explode, and he very near did, for he said. "Hold on there young man, have you lost your mind? What's this routine of throwing away money in the street? I think you need a psychiatrist."

The salesman smiled, let a dramatic pause pave the way for his next words and replied: "I haven't lost my mind Mr. Blank, I'm just throwing money away like you are with this antiquated, outmoded equipment."

A smile started to spread on the prospect's face, until both prospect and salesman were howling with laughter. The ice was broken, and the salesman got his order.

Corny? Sure but it got results.

SILENT

BLOWHARD

"BIG BOY" DIRECT DRIVE BLOWER FOR HEATING-COOLING COMBINATIONS

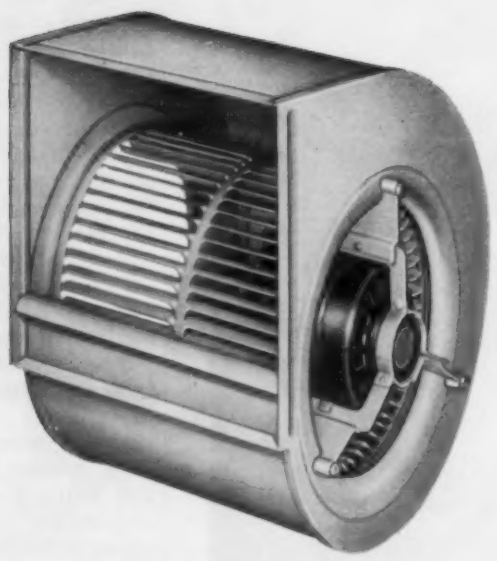
Theme of the thinking at Utility might be expressed:
"Make it blow—Make it better—Keep it quiet!"
Direct beneficiaries of this policy are manufacturers of heating, cooling, refrigerating and ventilating equipment. Newest visible expression of this passion for silence is a burly brute of a direct drive blower. "Big Boy" is its name. Strength and silence will be the cornerstones of its fame.

Its giant airflow capacity is great enough to handle up to 125,000 BTU—3-ton heating-cooling combinations. Compact and easily speed controlled, it delivers approximately 1,400 to 1,500 CFM at a static pressure of 0.75" WG to make "Big Boy" the most powerful direct drive blower now available, bar none.

First to create silent direct drive blowers with Neoprene hubs, Utility again is *first* with a direct drive blower of this capacity with super-quiet split capacitor motor. It makes sense to add the sales appeal of whisper-quiet operation to your larger equipment, so specify Utility's silent "Big Boy" Direct Drive Blower.

Check Utility for blowers, blower parts or any combination of parts. Here's what you'll discover:

YOU CAN'T MATCH UTILITY FOR PRODUCT AND PRICE!



A DIVISION OF UTILITY APPLIANCE CORP.

UTILITY FAN CORP.

911 East 59th Street, Los Angeles 1, California

Manufacturers of heavy and standard duty blowers for heating, air conditioning and ventilating installations. Producers of blowers and blower parts for original equipment manufacturers. Write for catalogue data.

Holly Mfg., General Water Heater Merge

PASADENA, Calif.—William Keegan, president of Holly Mfg. Co. here, a division of The Siegler Corp., and of General Water Heater Corp., Burbank, Calif., a wholly owned subsidiary of Siegler, has announced the combining of the administrative and sales activities of these organizations into a new division to be known as Holly-General Co., with headquarters at 875 S. Arroyo Parkway, Pasadena.

Sales activities of these organizations in the southwestern part of the United States will be handled by Southwest Holly-General, a division of Superaire Corp.

General Water Heater Corp. and Holly Mfg. Co. will continue manufacturing at their present locations.

According to Keegan, Holly-General Co. is being formed for the purpose of offering better service and a more complete line to Holly-General customers. The Holly-General sales organization will sell the full line of General water heating and Holly heating and air conditioning equipment for residential, commercial, and industrial use.

Individual trade names, "Holly" for heating and air conditioning, and "General" for water heating will be kept.

For more information about products advertised on this page use Information Center, page 28.

Dealer Triples Residential Air Conditioning Sales By Pushing Follow-Up Program on Heating Clients

TOPEKA, Kan.—Heavy emphasis on diversification in colorful highway signs helped Gage's, Chrysler Airtemp dealer here, to hit new air conditioning sales records during 1956, according to Buford Gage, head of the firm.

Gage's firm specializes in "comfort engineering," with a complete line of heating equipment, plumbing service, and air conditioning, as well as an appliance store.

COVERS 'EVERY PART' OF HOME COMFORT

Throughout the past ten years, beginning with a background as contracting plumbers, Gage's has spread its services to the point that every aspect of home comfort is covered by the organization, it was noted.

With sales for 1956 more than 25% greater than during 1955 in the air conditioning division, the company has split its merchandising program almost equally between commercial and residential air conditioning.

Aiding substantially, it was explained, are five "sales engineers," all local Topeka men, chosen for ability to learn and sell, and trained continuously in the Gage showroom.

One of the best examples of how the Topeka dealership has kept its name foremost in air conditioning came during the early days of package air conditioning, when Gage's "manufactured its own," buying compressors, coils, and condensers separately, making up cabinets for package units in its own sheet metal shop and marketing them to fit specific needs, the owner stated.

OLD UNIT OPERATES CONTINUOUSLY

While it has been a long time since the Topeka store has manufactured a package air conditioning unit, one of the old time units is in continuous service in the showroom during the summer months, as an active demonstration of the store's sound engineering backroom, Gage said.

In the residential air conditioning sales field, the Kansas dealer considers every automatic heating prospect an air conditioning prospect as well, and when one is sold, there is a constant follow-up program until the other is sold.

This long continued policy, with a new contact with the prospect on the average of once every 90 days, brings results, it was indicated.

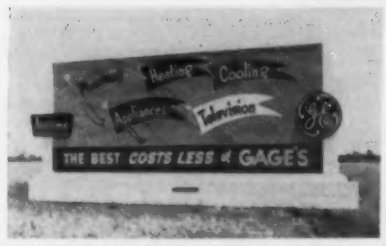
CENTRAL, PACKAGE UNIT SALES SUCCESSFUL

During 1955 and 1956, the firm has been equally successful in selling central air conditioning systems and package units. When a salesman is called in on a residential job—and incidentally, it is claimed anyone of them can engineer the entire installation of a remote system as well as package system—he makes a point of the fact that once the family gets accustomed to a room cooler in the bedroom window, then another in the living room, the chances are that eventually the family will spend enough buying extra units to pay the cost of a remote central system which will last much longer, Gage reported.

This is a sales point which has been continuously hammered home and which has more than tripled the unit sale in the residential field, it was declared.

Where the commercial market is concerned, Gage's has more than 80 installations in the downtown Topeka residential area, including stores, restaurants, office buildings, clinics, etc. In all but a few instances, the salesman who sold the job likewise handled the "engineering," with no registered instances of "wrong guesses."

Every department in the big store is dependent upon the others for a large share of its traffic. Gage's maintains a complete appliance and television showroom valuable from the traffic standpoint, a plumbing fixture department, heating division, sheet metal shop, model kitchen planning service, etc.



WAY to Gage's in Topeka, Kan. is pointed by this sign consisting of five brilliant colored flags on blue background and signature cuts of two prominent manufacturers on either side.

Five flags in brilliant color on a blue background, indicate "Plumbing — Heating — Cooling — Appliances — Television," with the signature cut of two top line manufacturers represented to point the way.

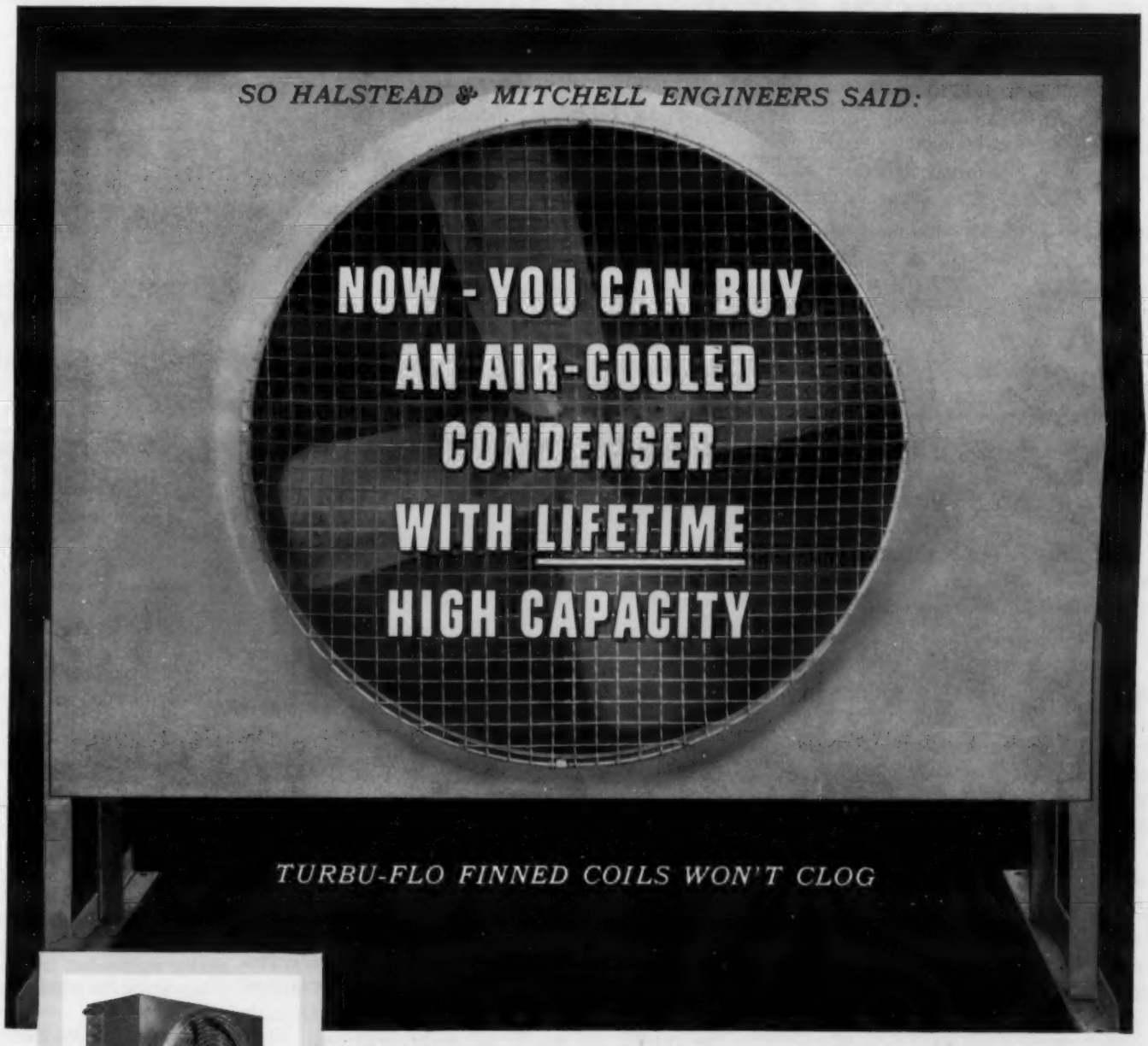
31 Summer Air Conditioners Installed In Courthouse

LINCOLN, Neb. — Four Lincoln appliance stores shared in air conditioning contracts for $7,021.50 awarded by the County Commissioners to complete cooling of the antiquated Lancaster County Courthouse.

Twenty-four 1-ton and seven 2-ton units were purchased. Last summer unit air conditioners were purchased for major offices and two courtrooms.

A joint contract for 14 1-ton units at $2,772 and seven 2-ton units at $2,275 was awarded to Franklin's Home Furnishings and Barth Hardware Co. Five 1-ton units were purchased each from Paramount Supply Co. at $1,074.75 and Lincoln TV Center at $999.75.

Cooling capacity ratings were studied in selecting the best bids, County Commissioners said.



Here is the industry's finest air-cooled condenser using the exclusive non-clog "Turbu-Flo" finned coil. In this most efficient Halstead & Mitchell design, wide fin spacing prevents the coil clogging with air-borne dirt and other particles which cause a quick loss in condenser capacity. Thus, Halstead & Mitchell's high condenser capacity is built-in, for lifetime operation.

As a best starting point, Halstead & Mitchell uses a generously big coil, with fins spaced 6 to the inch. This means a low pressure drop, which in turn means high operating efficiency. The "Turbu-Flo" fin itself contributes to an extra-measure of heat transfer, providing a marked turbulence of air flow over the finned surface. This results in increased heat transfer due to lowered air film resistance. Thus, there's a generous reserve of capacity in these Halstead & Mitchell Air-Cooled Condensers—capacity which will stay high for the life of the unit.

The exceptionally rugged construction, the manifolding for easy multi-circuiting, and the right price make Halstead & Mitchell air-cooled condensers preferred by contractors everywhere. More details are yours for the asking—write for free Condenser Bulletin. *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.*

AT LEADING WHOLESALERS EVERYWHERE

Halstead & Mitchell

FOR MOTOR OVERLOAD PROTECTION

MECHANICAL INDUSTRIES PRODUCTION COMPANY
223 ASH STREET • AKRON, OHIO

They'll Do It Every Time

by Jimmy Hatlo

TESTING··· ONE-TWO-THREE-FOUR···WOOF-WOOF! CHOW HOUND··· YOU AIN'T NOTHIN' BUT A CHOW HOUND··HA-HA!
IS THAT THING A DICTATING MACHINE OR A NEW TOY? EVERYBODY IS MAKING LIKE ALEXANDER GRAHAM CRACKER···
EVEN BIGDOME PLAYS WITH IT·· HE'S EVEN BEEN ANSWERING DUNNING LETTERS AND CIRCULARS···
C'MON··· LET ME TRY IT···
HEY! IT'S MY TURN!
IT'LL BE FUN IF THEY DON'T KNOW HOW TO ERASE THOSE PEARLS OF WISDOM, AND BIG-DOME DOES A PLAYBACK····
NOW THEY GOT TO PLAY ALL THAT TRIPE BACK···BEFORE THE COFFEE BREAK, THAT IS···
GIVING THE NEW HOLLER BOX A WORK-OUT WHILE THE BIG CAT IS AWAY····
THANX AND A TIP OF THE HATLO HAT TO DOROTHY DASE, 403 W. BALTIMORE (204-1), DETROIT 2, MICH.
JIMMY HATLO
3-6
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Important Role of the Qualified Commercial Refrigerator Dealer

"If a man who had been in the commercial refrigeration business in the late 1940's, say, and then dropped out of it, should return to the business today, he would find himself hopelessly lost until he could catch up with the changes that have occurred."

So said the head of one of the major manufacturers of commercial refrigeration equipment, talking about the present state of the commercial refrigeration business, and the role of the dealer.

Phase of commercial refrigeration in which the biggest change has taken place is in food market installations. And the change—insofar as its significance to the commercial refrigeration marketing picture is concerned—is not only in change in design, and the increase in the size of the average installation—but is more importantly the greater amount of refrigeration engineering that is involved.

Not too long ago many refrigerated market fixtures were single self-contained refrigerators, needing only a simple electrical connection. Occasionally a couple of fixtures would be hooked up to a single condensing unit, but there was usually only one temperature range involved. Defrosting was just beginning to loom as a major problem, as the use of low temperature merchandising fixtures started to mount.

In short, the commercial refrigerator dealer did not have to know much about the art of refrigeration (although a number of them did) nor did he need a technically trained staff.

Those to whom he sold such equipment, for the most part, knew practically nothing about the mechanics of the refrigeration system.

How have the big changes come about in commercial refrigeration—particularly in food market refrigeration?

These changes have accompanied advances in design of equipment, which now runs through a much wider range of temperatures (and humidities), much larger installations (as stores grew larger), the multiplexing of units, long piping runs, and other attendant application problems.

Proper defrosting of the equipment became a major consideration. New problems, arising out of the use of air conditioning in stores have open display cases, plus problems in water shortages that required use of water-saving equipment, began to involve the commercial refrigeration dealer.

Moreover, the buyer of market fixtures began, through necessity, to appreciate the importance of the refrigeration engineering phases of his refrigerated market fixtures installations.

Retail food chains established special departments devoted to looking after refrigeration problems.

Independent food merchants, banding together in cooperative buying groups, influenced the wholesaler serving them to make use of a "store engineering" specialist, a man well versed in refrigeration, to make certain they were getting the best possible job.

Consequently, the commercial refrigerator dealer today not only has to keep up to date on food merchandising trends, and store layouts, but he has had to sharpen up on his refrigeration technique as well.

"Once upon a time," said the commercial refrigerator manufacturing executive, "we were satisfied with—and perhaps preferred—the dealer who seemed particularly adept at selling the food merchant, even though he might be weak on refrigeration.

"Today the dealer that is weak on refrigeration is not only a weak link in our distribution chain—he is a definite liability to the manufacturer."

All this points to a simple moral—the old one that education must never cease. The commercial refrigeration dealer who stops learning is jeopardizing himself, the manufacturer he represents—in fact, the entire industry.

The brotherhood of man is not a dream: it is a fact. And if mankind is to survive as a species, this fact must be recognized. This curious point where biology and religion meet must be our new point of departure, the only basis for a brave new world—its alternative being war and chaos.—*Stuart Cloete.*

Man was created alone, for the sake of peace among men, that one might not say to his fellow: "My father was greater than thine."—Mishnah, Sanhedrin, iv. 37.

Prejudice is not held against people because they have evil qualities. Evil qualities are imputed to people because prejudices are held against them.—*Marshall Wingfield.*

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AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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AUSTRALIAN CENTENIARY SEEN AS BIG AFFAIR

The Refrigeration Journal
Australia

Editor:

It was pleasing to read your Sydney Correspondent's page on the Refrigeration Centenary in the Nov. 19, 1956 NEWS.

You may be interested in two facts which your Correspondent did not bring out: last year's refrigeration centenary was more than an Australian affair. Authorities such as Professor Plank agree that Harrison's Australian achievement was of World importance and can be regarded as the beginning of modern refrigeration. Secondly, the Australian celebrations were sponsored by the Australian Institute of Refrigeration Inc., a professional body of about 1,000 members and proprietors of the Refrigeration Journal. The Institute arranged for newspaper supplements, radio talks, a pilgrimage to Harrison's grave and really succeeded in bringing refrigeration to public notice.

My desk has never been without a copy of the NEWS for over 20 years and I enjoy opening it every week. I confess I have given up trying to follow your baseball stories but was intrigued by the recent collection of "pithy" expressions. Perhaps you might accept as a postscript this description of somebody really miserable "as happy as a bastard on Father's Day."

May I end on a personal note? In your archives you will find a photo of the writer standing in front of a Berlin shop window displaying domestic refrigerators, subsequently published in the series of NEWS describing your world tour. If a clipping could be found I should be very happy to have it.

H. G. GOLDSTEIN,
Chairman-Editorial Board

REAPPRAISAL EDITORIAL DESCRIBED AS TIMELY

Servel, Inc.
Evansville, Ind.

Editor:

Your editorial, calling for an economic and political reappraisal, is timely, and I hope it will stir up a lot of interest.

LOUIS RUTHENBURG

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10.00 per year.

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Sees 'Virtually' All Commercial and Industrial Buildings Air Conditioned Within 10 Years In Trend to 'Full Comfort'

MILWAUKEE—A prediction that, within 10 years, virtually all commercial and industrial buildings will have automatically controlled heating and air conditioning systems was made by Joseph A. Cutler, president of Johnson Service Co., at its annual stockholders' meeting here.

Cutler reported a net income after taxes of $3,569,622 for 1956 from billings of $38,289,551 to customers for installations entirely completed during the year. This is an 11.7% increase over comparable billings in 1955. The company manufactures automatic temperature and air conditioning control systems.

Cutler's forecast was made as part of a review of the progress of "made-to-order" indoor weather. It was based on "the increasing trend to complete 'comfort' conditioning in all commercial and industrial buildings currently being constructed in all fields—offices, hotels, stores, factories, and even hospitals."

OBSOLESENCE AUTOMATIC

This, he pointed out, automatically obsoletes existing structures and thereby intensifies their competitive problems to a point which virtually forces them to install air conditioning. This process over a period of 10 years, he reasons, will leave only a scattering of non-air conditioned derelicts which will then be awaiting the wreckers' hammers, thus fulfilling his prophecy.

Besides the comfort aspects of air conditioning, there is also a growing need for protective temperature and humidity control to safeguard sensitive products and processing operations, Cutler pointed out. "Unfailing controls, easily adjusted and serviced to prevent shutdowns and spoilage, are an absolute must in many plants today," according to Cutler.

COOLING HAS DOLLAR VALUE

"Business is rapidly learning," he said, "that air conditioning has a real dollars and cents value which reflects itself in lower operating costs through lower employe turnover, improved output, decreased absenteeism, and less difficulty in employe recruitment.

"This is not just a theory but a very tangible figure on the operating balance sheet. For example, it has been estimated that, due to decreased employe turnover, contributions to state unemployment funds often are reduced by more than the per employe cost of air conditioning.

"Also, many medical records usually show a sharp drop in absenteeism for minor ailments, and improved production statistics reflect the increased efficiency of comfortable workers, both representing very real additional savings to any company.

COOLING IS EMPLOYE'S SECOND CONCERN

"Any employer will tell you today that the first question the average job seeker asks is: 'How much does it pay?' and the second: 'Is the working space air conditioned?' In today's tight labor market where competition for adequate help is extremely keen, this can be critically important, even to the extent of forcing older plants to install air conditioning to retain operating personnel."

Cutler sees in the school field, where building is constantly increasing, one of the greatest potentials for complete "comfort" control.

SCHOOL AIR CONDITIONING SEEN AS BIG FIELD

A number of recently built schools are entirely air conditioned, he reports, and many others have at least some air conditioned sections such as the auditorium and general offices. Also, he says, there is an increasing trend to providing facilities for future air conditioning installations in the original construction of more and more schools everywhere.

Since he was elected president and general manager of Johnson in 1938, Cutler and his associates "have been highly successful in the development of other applications of pneumatically-operated control systems," it was further pointed out.

"These include controls for atomic energy plants and many types of industrial processing operations in food plants, textile mills, tobacco curing, pharmaceutical laboratories, chemical plants, metal fabricators, aircraft components plants, etc."

The company operates through 104 direct factory branches in the United States and Canada from which it engineers, installs, and services its control systems with full-time trained engineers, technicians, and servicemen.

Air Conditioned Plant To Make Turbine Blades

BATESBURG, S. C.—A one-story windowless building, measuring 240 ft. by 140 ft., has been completed here for occupancy by Lake Shore Industries, Inc., of Cleveland. The new plant, air conditioned, will process turbine blades for turbo-jet engines.

AIR CONDITIONING was asked for when Civil Service Employees Insurance Co. moved from 571 Market St. to the top floor of David Hewes building, 989 Market St. George Place, photographer for *The San Francisco News*, lay flat on his back to take this photo of a Dunham-Bush 180 multi-zone complete air conditioning unit being delivered to the roof of the six-story building by a 90-ft. crane with a 30-ft. jib.

GENERAL ELECTRIC ZONE-BY-ZONE AIR CONDITIONING IS BIG BUSINESS!

BIG! Clifty Creek Plant, Madison, Ind., world's biggest investor-owned power plant installed General Electric Zone-by-Zone Air Conditioning.

BIG! Modern Louise Obici Memorial Hospital, Suffolk, Va., installed G-E Zone-by-Zone Air Conditioning.

BIG! 12-story Medical Arts Building, Oklahoma City, Okla., installed G-E Zone-by-Zone Air Conditioning.

General Electric makes it easy for contractors to land and handle the BIG jobs!

General Electric Air Conditioning Contractors bid on the *big* jobs—and land them! Thanks to General Electric's Zone-by-Zone method, contractors can offer installation without costly interruption to business—no major alterations to premises—no large initial outlay. And General Electric helps arrange liberal financing for your customers.

With the fabulous opportunities of Air Conditioning's Billion Dollar Decade ahead, General Electric comes through with the profit-building "Golden Gate" Plan. It gives General Electric Contractors tremendous advantages—industry's most famous trade-mark—most flexible selection of floor- and ceiling-mounted units, air- and water-cooled—comprehensive sales training course—famous 5-year warranty—Selected User Plan that pinpoints advertising, promotion and sales efforts to all prospects.

Get your share of Billion Dollar Decade profits through General Electric's "Golden Gate" Plan. See your General Electric Distributor or mail coupon. General Electric Company, Commercial and Industrial Air Conditioning Dept., 5 Lawrence St., Bloomfield, N. J.

C. J. Rigby, General Electric Co.—Section A-6
Commercial & Industrial Air Conditioning Dept.
5 Lawrence Street, Bloomfield, N. J.

I am interested in a front row seat for THE BILLION DOLLAR DECADE.

Name_____

Firm_____

Address_____

City_____ Zone____ State_____

In Canada, Canadian General Electric Co., Ltd., Montreal

Progress Is Our Most Important Product

GENERAL ELECTRIC

MARSH
Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

new ACI

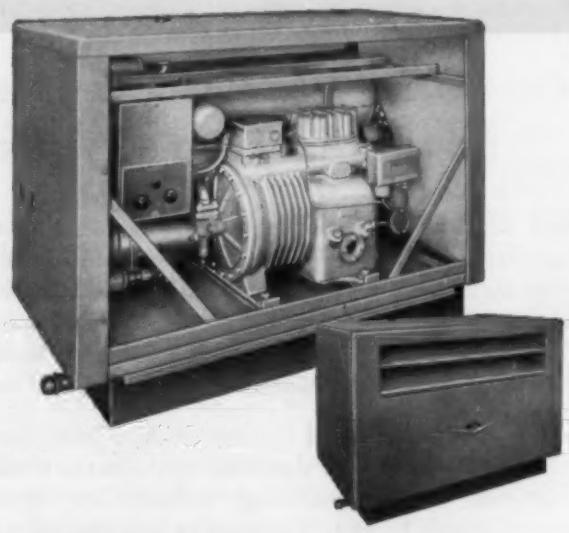
The 63,000 square foot ACI plant in Farmingdale, New Jersey is completely heated and cooled by heat pumps. 14 quiet, completely automatic units totaling 123 hp, serve the plant providing efficient, economical comfort—all year 'round.

The units are spotted strategically around the plant, to provide maximum zone comfort. Any single unit can be independently controlled by employees in its zone. Semi-automatic or automatic controls maintain temperatures at desired levels.

ACI HEAT PUMP

Cools in Summer...Heats in Winter...

ACI water-to-air heat pump provides year 'round comfort efficiently and economically without fuel, flame, flue or chimney. All you need is well water and electricity. NO auxiliary heaters are needed *even in the coldest weather.* For all commercial business or residential applications. Automatic or Semi-automatic. Duct or Ductless installation. Available in 3 HP thru 15 HP.



ACI PACKAGED LIQUID CHILLERS

For industrial liquid cooling, pre-cooling or air conditioning... and drinking-water cooling.

Air- or Water-cooled. Complete, *Self-Contained* . . . ready to install.

The ACI Liquid Chiller offers top performance, long life and trouble-free service to commercial or industrial users. Suction gas cooling permits use in any location. Adjustable temperature control. Freeze Thermostat protection.

Available in 6 sizes, 2 HP thru 15 HP.

ACI COOLING TOWERS

Designed For Low Cost, Water-Saving Operation

Condenser water cooling at maximum efficiency and economy. "Labyrinth" type heart Redwood decking provides more water surface to be exposed for heat transfer. Two types are available, propeller type for economical outdoor installations; squirrel cage blower type for outside or indoor installations with ducts. Available in 21 models that deliver from 3 ton to 60 ton.

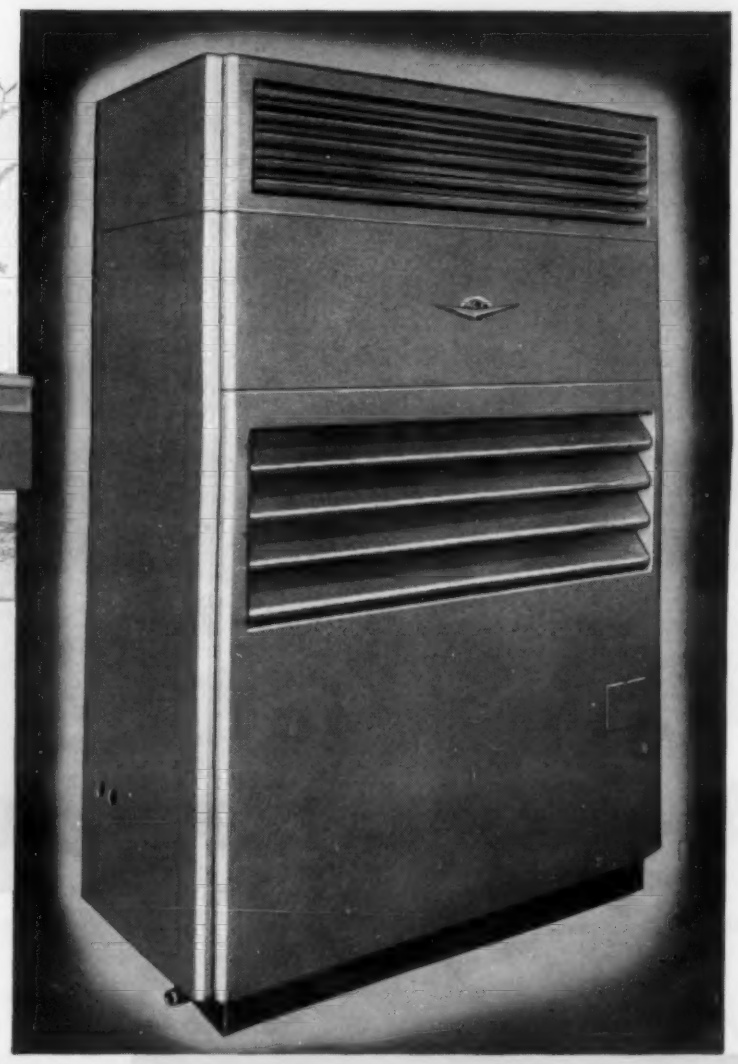
4926

For more information about products advertised on this page use Information Center, page 28.

I plant...

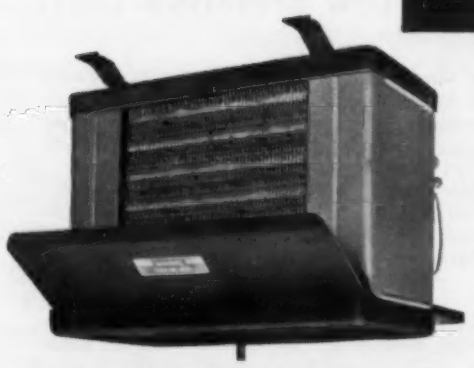
FEATURES WORLD'S LARGEST SUMMER AND WINTER AIR CONDITIONING BY DUCTLESS HEAT PUMP SYSTEM

New, stepped-up facilities employ most modern production and design methods... very latest Air Conditioning engineering techniques... Your Guarantee of top-performance... from ACI products



ACI AIR CONDITIONERS

3 Tons thru 15 Tons... water-cooled or air-cooled. The last word in cooling comfort for stores... offices... theatres... industrial plants... homes.



ACI UNIT COOLERS

Convenient, easy to install refrigeration... down to 36° F.

ACI Unit Coolers are designed for efficient, economical use in any type of cooler, walk-in or reach-in. The compressor unit is placed where convenient, (cellar, attic), then the unit coolers are mounted in the boxes or cases requiring refrigeration. Offers the customer cost-cutting installation plus efficient refrigeration. Available in 3 models, 22 sizes, capacities ranging from 1,350 to 23,000 BTU/hr.

ACI
AIR CONDITIONER

Water-cooled! Air-cooled!

Priced for *top* profit potential for Air Conditioning:

DISTRIBUTORS
DEALERS
CONTRACTORS

With the opening of the new Farmingdale, New Jersey, plant, ACI Air Conditioners are now offered at more-than-competitive prices. Admirably styled, attractively designed, and, above all, superbly built, this "last word" in Air Conditioning offers you biggest-ever opportunities for better business...more sales...higher profits.

Efficient, economical cooling in a variety of unit sizes gives you a wide range of sales prospects. ACI features that sell themselves to prospective customers include oversized fan motors for long, maintenance-free operation—vibration eliminators for smooth, quiet running—solid, heavy construction for long life—exclusive "air-scoop" louvers, with both vertical and horizontal adjustment—ease of installation and servicing, if necessary.

. . . And the Price is Right!!
A Real Money-Maker for You!

Get On the ACI Bandwagon To Bigger Profits *Today*. Check below for FREE product data.

Factory Warranty on all ACI equipment
1-year Warranty on entire unit.
5-year Warranty on compressors.

SALES REPRESENTATIVES
Choice territories available. Write today!

AMERICAN COILS CO.
Farmingdale, New Jersey

Please send me information on the ACI Air Conditioner____, Heat Pump____,

Packaged Liquid Cooler____, Cooling Tower____, Unit Cooler____.

Name_____Title_____

Company_____

Address_____
Street City Zone State

For more information about products advertised on this page use Information Center, page 28.

CORROSION

The experienced refrigeration and air conditioning serviceman is familiar with the fundamental principles of several trades and professions. Familiarity with the basic principles of corrosion chemistry can serve as an added valuable tool in his work.

This series of articles by Frank J. Versagi, chief chemist, Mueller Brass Co., will also delve into the causes and effects of corrosion in refrigeration and air conditioning systems. Part I of the series was concerned with chemical corrosion. Part II dealt with electrochemical corrosion. Part III also deals with electrochemical corrosion where electrolysis is involved.

Part 3—Electrochemical Corrosion

By Frank J. Versagi, Chief Chemist, Mueller Brass Co., Port Huron, Mich.

It is possible for an electrical current to flow in a system without two metals being involved. When this occurs we have the electrochemical type of corrosion called **electrolysis**—the term so often mistakenly used as meaning the same as galvanic action. Galvanic action can occur only when two unlike metals are in electrical contact. Electrolysis can occur when only a single metal is involved.

Electrolysis Involved When Water Line Fails

Electrolysis is the type of corrosion most often involved when a water line fails. The next article will treat fully the role of water in corrosion, but here we will describe the basic mechanism of corrosion by electrolysis.

In the first article, where we discussed the direct chemical attack on metals, we mentioned that sometimes the products of corrosion actually coat the material and protect it from further attack.

Perhaps the most familiar example of this type of thing is the fact that when aluminum is exposed to air, it almost immediately forms an extremely thin, but highly impervious skin. This oxide skin prevents any further attack on the base metal, and makes aluminum a good metal to use for exposed locations. Anodized aluminum is aluminum which has been treated so as to have a preformed oxide film.

This same tough aluminum oxide film is the source of difficulty in soldering aluminum. It is difficult to get down to the base metal and get a metal to metal contact with the solder.

Coatings Retard Attack on Metal

So long as coatings of this type remain intact and unbroken, they serve to retard further attack on the base metal. If for any reason they become broken, and the metal is in a liquid or film environment, it is likely that the base metal will begin to corrode rapidly at the point the scale is broken.

If you have ever seen a pipe which was in good shape except for a role or two, it almost certainly was this type of corrosion.

Piping or tubing which contains mill scale is a potential trouble spot, since rapid corrosion can occur at any small interruption in the mill scale. Briefly, here is what happens.

In the presence of a suitable electrolyte, mill scales and most corrosion products become a cathode and any exposed metal beneath becomes the anode. If there is no break in the skin, no current can flow, since the electrolyte is in contact with only a single substance.

However, if with the normal temperature changes and expansion and contraction, or because of turbulence or high velocity in the lines, the scale is broken, an electric current begins to flow between the exposed metal and the scale in the immediate area.

Metal will tend to dissolve and enter into solution. This process will continue unless some product happens to settle over the exposed metal again electrically isolating it from the electrolyte.

When this type of electrolysis occurs, a pipe may fail by pitting even though it may have lost only a very small amount

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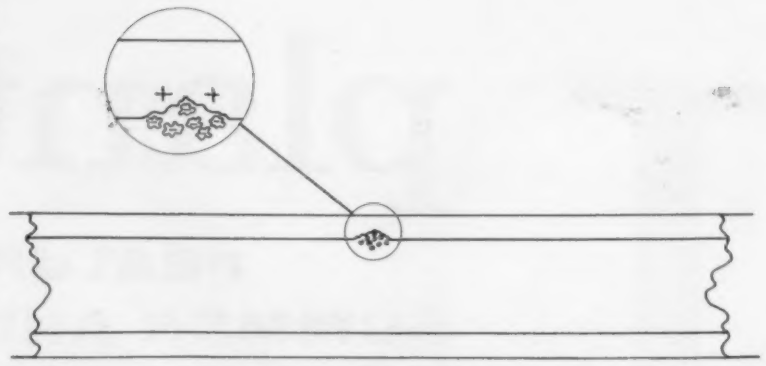
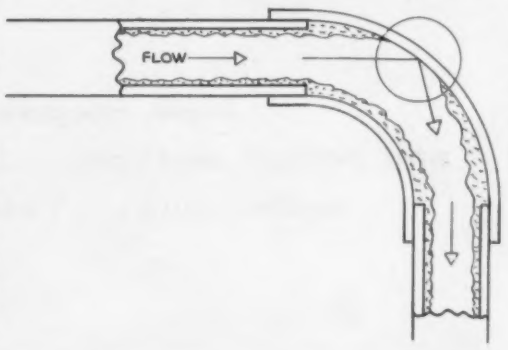
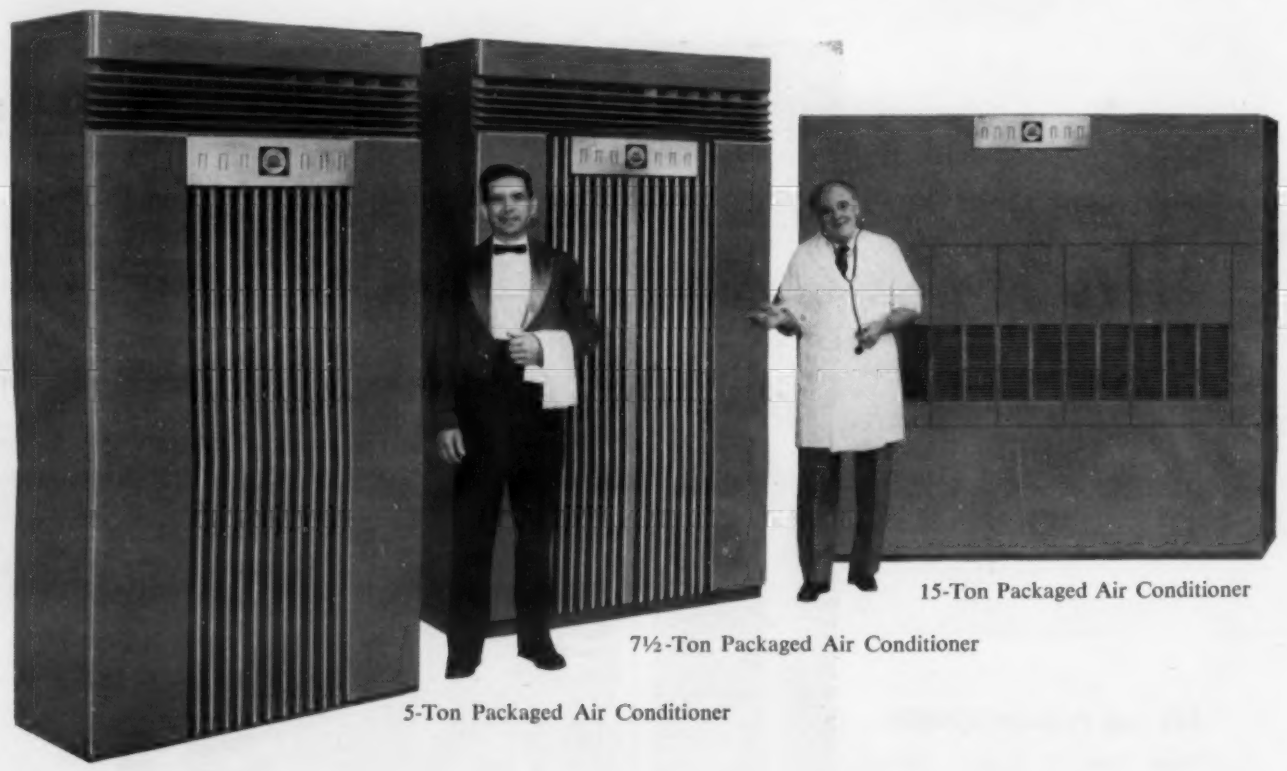


IN THE presence of an aggressive water, foreign particles like sand or dirt can serve as cathodes. The metal which is directly beneath the particles becomes anodic.



FREQUENTLY excessive turbulence will tear away the protective layer of corrosion products, causing a fitting to fail through a combination of electrolytic corrosion and mechanical erosion.



5-Ton Packaged Air Conditioner

7½-Ton Packaged Air Conditioner

15-Ton Packaged Air Conditioner

All-new American Blower Packaged

OUTSTANDING PERFORMANCE! QUIET OPERATION! LOW OPERATING COST!

1. Plenum. Minimum height to fit into limited spaces. Outlet grille has horizontal and vertical louvers to control air distribution. No special tools needed for adjustment. Designed for optimum velocity at low fan speeds.

2. Fan. Centerplate construction eliminates turbulence; wheel and housing integrally designed; large outlet area, low-speed operation. Fan size specially selected for each size unit, for peak performance with plenum or duct work.

3. Filter. Permanent-type. Large face area gives maximum cleaning; permits low fan speeds. Low air resistance means more air per horsepower, smaller electric bills. Condensate washes dust, dirt from filter, provides less variation in air flow.

4. Cooling Coils. Copper coils with spiral aluminum fins, sloped and staggered to give greatest air-coil contact. Because air is drawn through coils, not blown through, every square foot of coil is utilized for more cooling capacity.

5. Compressor. Motor and compressor hermetically sealed in rigid casing; spring-mounted to absorb vibration. Require no oiling, adjusting, seasonal pumpdown. Triple-valve design for quietness. Warranted for five years.

Redmond

MICROMOTORS

One of largest stocks in the world!

FACTORY DISTRIBUTORS
MARVIN L. "FERGIE" FERGESTAD

CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

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Electrochemical Corrosion--

(Continued from preceding page)

of its actual weight.

Pitting can occur even if no active corrosive substance is present; it is only necessary that the liquid or film present allow the small electrical currents to flow.

Dirt, sand, grains of grit from cleaning cloth—all of these can serve as centers of activity for electrolysis. In this case, the metal becomes the anode, the foreign particles form the cathode.

Incentive To Keep Units Clean

Here we have another incentive to keep units clean and free from all foreign matter.

There are several other combinations of conditions under which electrolysis will occur, but discussion of them would be out of place here. In all cases, the basic principles we have discussed apply.

Both chemical and electrochemical corrosion are sometimes the sole cause of a failure; more often they are merely one of several contributory causes.

For example, we have examined piping and fittings taken from large condensers where the piping was covered with a protective layer of corrosion products, but where the fittings, especially at changes of direction, had been stripped clean by the high turbulence of the water. The combination of corrosion and erosion caused the fittings to fail, while the straight runs were in perfect condition.

Re-Engineer Flow To Cure

In this case, direct chemical attack, electrolysis, and erosion were all involved, but the actual cure was to re-engineer the flow to reduce the excessive turbulence at the fittings.

Most refrigeration servicemen will recall troubles which can be identified with some of the principles discussed in this article and in the previous article on direct chemical corrosion.

In water, all types of corrosion can take place, scales can form, green growth is a problem. The next article will thoroughly discuss the role of water in corrosion problems.

(To Be Continued)

Michigan RSES To Meet, See Demonstrations April 26-28

SAGINAW, Mich.—Michigan Association of the Refrigeration Service Engineers Society will hold its eighth annual convention at the Hotel Bancroft here April 26 to 28.

Program will include speakers and demonstrators from several manufacturers of refrigeration equipment. Registration for program and banquet will be $9.

Philco To Keep 'Balanced' Inventory of Replacement Parts with Distributors

PHILADELPHIA—A new replacement parts program for all Philco consumer products "to insure prompt service throughout the United States" was announced by Ray Nugent, general manager of the Company's Accessory Div.

Known as "Factory-Distributor 90 Day Service Parts Program," it calls for a balanced inventory of service parts in each Philco distributing territory. The program is the joint responsibility of all Philco distributors and the Accessory Div. of Philco.

"We recognize the important customer relations effect that prompt and efficient service plays in the growth and strength of appliance dealers," Nugent said. "The new service parts program will strengthen the position of all Philco dealers, because it calls for adequate replacement stocks and special 24-hour service from factory to distributor for any special parts needs."

The program has five points:

1. Maintain a balanced 90-day inventory of service parts in each Philco distributor territory.
2. Provide "emergency" service to Philco distributors for critically needed parts on a 24-hour basis.
3. Provide Philco distributors with printed order forms covering the fastest moving service parts.
4. Provide Philco distributors with "Service Parts Sales Frequency Reports."
5. Provide Philco distributors with authorization to return service parts on a percentage purchase basis.

The program, Nugent pointed out, is designed to protect the distributor from loss through excessive inventory of items, but at the same time allows him to carry all of the necessary service parts.

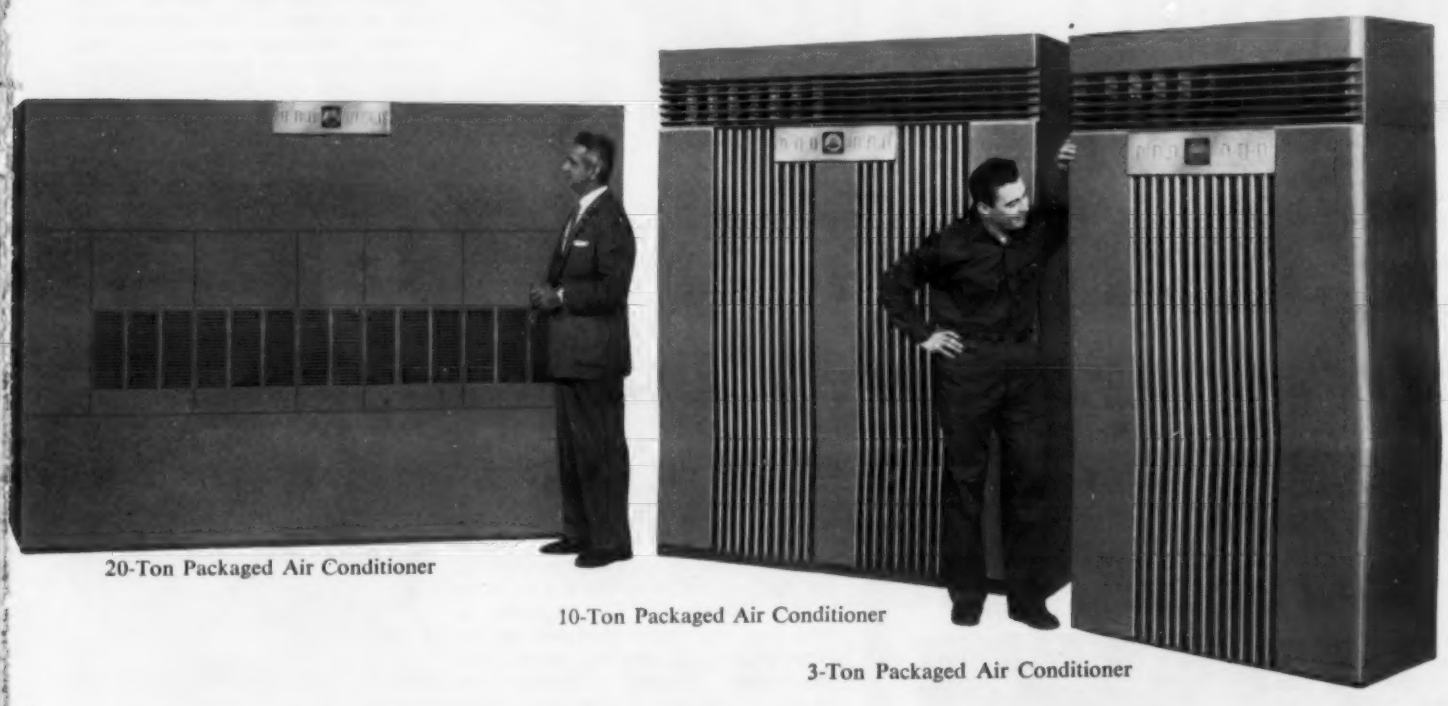
The special emergency order form for replacement parts requires shipment from the factory by the fastest possible means such as Air Freight or Air Parcel Post, it was explained.

To help guide distributors in the ordering of replacement parts, Philco's Accessory Div. will issue an IBM tabulated report to be known as "Service Parts Sales Frequency Report." This report will be a sound guide to help distributors in knowing what service parts are needed for their territory, it was stated.

Nugent reported that response from Philco's independent distributors and factory branches to the new program has been excellent.

Cool Department Store

MIAMI, Fla.—Completely air conditioned, Belk's new million dollar department store has formally opened in the Biscayne Plaza Shopping Center at 79th St. and Biscayne Blvd. The new store has 60,000 sq. ft. of floor space.



20-Ton Packaged Air Conditioner

10-Ton Packaged Air Conditioner

3-Ton Packaged Air Conditioner

Air Conditioners for every business!

Comfort-engineered to condition every corner!

American Blower Comfort-Engineered Packaged Air Conditioners give you *more* cooling with their large-capacity cooling coils – sloped, spiraled and staggered for the greatest air-coil contact possible!

Air passes first through the large, heavy-duty filter where dirt, dust and impurities are removed. Then heat and moisture are extracted as the air is drawn over every square foot of the coil.

Finally, the American Blower Fan, with exclusive centerplate construction, sends conditioned air through plenum or duct work to every corner of a building. Centerplate construction eliminates turbulence – means even circulation, greater efficiency, smoother, quieter operation.

There's an American Blower Comfort-Engineered Packaged Air Conditioner, in sizes from 3 to 20 tons, to satisfy the air-conditioning requirements of every business – retail stores, showrooms, offices, factories.

If you'd like to become a dealer for American Blower Packaged Air Conditioners – and benefit from American Blower's 75 years' leadership in the air-handling and air-conditioning fields – send for full information today! Write: American Blower Division of American-Standard, Detroit 32, Michigan.

DISTRIBUTORS: Choice territories are still available. Send for franchise data today.

Full Five-Year Warranty

In every American Blower Packaged Air Conditioner, the complete refrigeration circuit, including the hermetically sealed compressor, is warranted for a full five years. In addition, the compressor is permanently lubricated – never needs oiling or seasonal pumpdowns.

AMERICAN BLOWER

Division of AMERICAN-Standard

For Clean, Pure Ice, Use

VAPCO

ICE MACHINE CLEANER

The *Liquid* Cleaner That Is

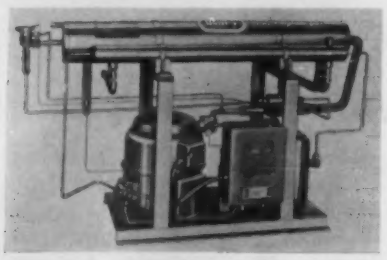
1. FAST ACTING
   Goes to work instantly, even in cold water
2. SAFE
   No toxic residue, no objectionable fumes

Recommended by Leading Ice Machine Manufacturers

SEE YOUR WHOLESALER OR WRITE TODAY

GARMAN CO., INC.

ST. LOUIS 23, MO.



Heat-X Adds Fully Packaged Units

———KEY NO. G-440———

BREWSTER, N. Y.—Completely packaged units for residential and light commercial chilled water air conditioning systems have been added to its line, Heat-X, Inc. here announced.

Designed for space saving, the condenser units feature "Inner-Fin" construction for more cooling capacity and less bulk, it was noted. All water passages are of non-ferrous construction, eliminating corrosion problems.

Other features include a fully insulated, metal covered chiller and a hermetic compressor. Safety devices are: overload protection; compressor starter; factory-set high and low-pressure cutouts; manual toggle switch for compressor; and thermostatic control to insure against freezing.

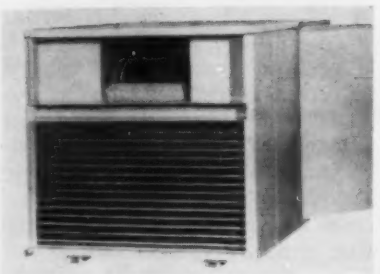
All components are mounted on a heavy steel frame to insure longer life, the company said. Optional equipment includes sheet metal enclosure, water valve, capacity controller, and refrigeration gauges. Units are available in 2, 3, and 5-hp. models for 230 v., single-phase, 60 cycle and 208-220 v., three-phase, 60 cycle operation.

Sealed Circuit Central Conditioners Offered

———KEY NO. G-441———

GARWOOD, N. J.—Single-unit central air conditioners were added to the Thatcher Furnace Co.'s line of heating and air conditioning equipment recently when the firm announced two new sealed circuit units.

Intended for residential, commercial and light manufacturing use, the two units are an economy 2-hp. model, and a deluxe high-capacity 3-hp. model. Both are suitable for almost any kind of installation, including flat roof, through-the-wall, attic, closet, pitched roof, or dormer use.



Features cited by the company include, factory testing and assembly of all units, extra large surfaces and airways for reduction of air noise, ASRE rating, four-row condensers, and hermetically sealed refrigeration components. There are no remote components or piping to install. In addition there is no need to add refrigerant as the units are factory charged with Refrigerant-22.

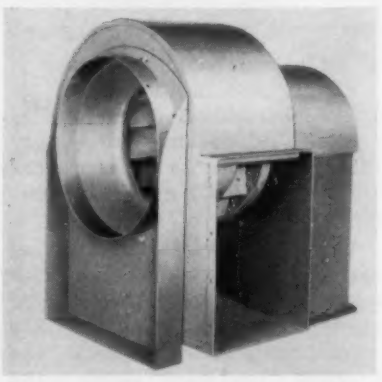
Utility Sets Require Little Floor Space

———KEY NO. G-442———

DETROIT—A new line of packaged centrifugal type utility sets featuring minimum floor space requirement and a new V-belt drive arrangement for maximum accessibility was recently made available from American Blower Div. of American-Standard.

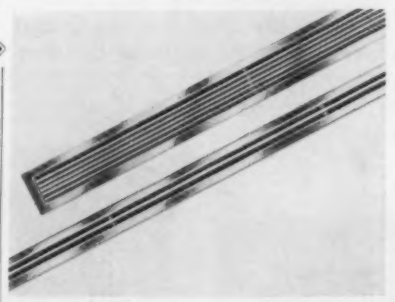
Thoroughly self-contained, the new "HS" utility set design provides a non-overloading wheel, welded steel construction, adjustable discharge, and adjustable motor base. Ball bearings are standard in the new design; sleeve type bearings are available.

V-belt drive arrangement is an overhung design, making it readily accessible for inspection and maintenance. All fans have adjustable pitch motor sheaves, allowing fan speed to be easily changed on the job. The overhung V-belt design also contributes to the minimum floor space feature, it was said.



HS utility sets are available in 12 sizes to meet the full range of air handling requirements. The smaller sizes can be selected with drive motors rated from ¼ to 1½ hp.; larger sizes are available with motors in the 1 to 10-hp. range.

Extruded Aluminum Diffusers Introduced



———KEY NO. G-443———

WATERLOO, Iowa—A new line of extruded aluminum linear type air diffusing grilles has been announced by Titus Mfg. Corp. here.

The new grilles are said to be equally efficient for diffusing air in ceilings, sidewalls, or floors. They are especially suited for continuous line use above or below large window areas in banks, schools, hospitals, and other public buildings, according to the company.

The diffusers feature snap spring clips for quick, simple installation.

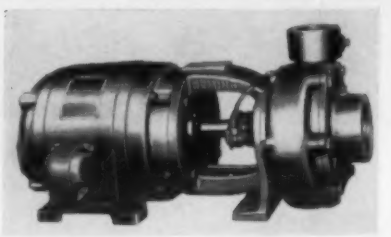
The grilles are available in 2, 3, 4, 5, 6, and 8-in. widths—in lengths of one-piece construction up to 12 ft.—and with front set of louvers fixed at 0° or 15° deflection. Any desired lengths or width will be constructed by Titus on special order. The grilles are also available with a rear set of individually adjustable louvers or multi-shutter or opposed blade dampers.

Deming Announces 'Motor-Mount' Pump Line

———KEY NO. G-444———

SALEM, Ohio—Production of a new line of "Motor-Mount" centrifugal pumps was recently announced by Deming Co.

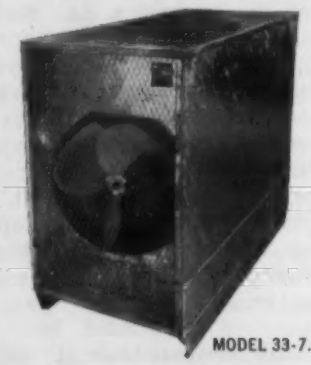
Motor-Mount pumps are claimed to deliver up to 1,200 g.p.m. with heads up to 220 ft. Included in the line are three separate pumping units of various sizes and pumping ranges. Construction features include a one-piece shaft, stainless steel shaft sleeve and enclosed-type impeller.



Havens

COMPLETE LINE OF PERFORMANCE PROVED COOLING TOWERS
FOR EVERY TYPE INSTALLATION

HOT DIPPED GALVANIZED After Fabrication



MODEL 33-7.5

RESIDENTIAL and SMALL COMMERCIAL INSTALLATIONS 3-15 TON

Small and compact, this tower has pan cover, expanded metal inlet screen and expanded metal fan screen. The motor and fan are recessed and hot water enters rear of distribution pan. Slow speed fans insure quiet operation. Easily disassembled if necessary.

MODEL 33-40

LARGE COMMERCIAL AND INDUSTRIAL INSTALLATIONS 20-60 TON

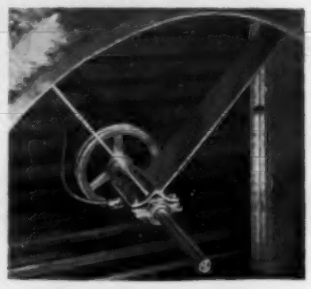
Constructed for easy disassembly, this tower has as standard features a fan screen, belt guard and weather-protected motors. Accessory items at a slight extra cost include a pan cover, expanded metal inlet screen and motor cover.

80-150 TON

HEAVY DUTY INDUSTRIAL INSTALLATION HAVENS VERTI FLOW 80-150 TON

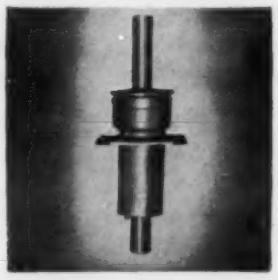
As modern as today's architecture, the low, sleek lines of the Havens Verti Flow Towers blend with building outlines. Fans are all aluminum – variable pitch – and sheaves are corrosion resistant cast iron. Shipped assembled. Also available – 175 and 200 ton Verti Flow models – shipped in 3 sections.

OUTSTANDING PERFORMANCE
MINIMUM MAINTENANCE WITH HAVENS LONG LIFE BEARING DESIGNS



33 SERIES BEARING

Porous bronze bearings in zinc-plated cast iron housing. Stainless steel fan shaft. Extra large oil cup.



VERTI FLOW BEARING

Bearing assembly is supported by heavy structural members. All parts are corrosion resistant.

Write for FREE brochures on Havens Series 33 Cooling Towers and Havens Verti Flow Cooling Towers

Havens COOLING TOWERS

Division of
HAVENS STRUCTURAL STEEL COMPANY
1713 CRYSTAL AVENUE • KANSAS CITY 26, MO.

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

. . . . . .
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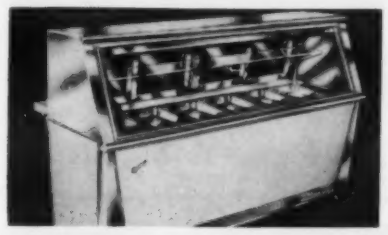
What's New or Current Literature Available

Key No. . . . . Key No. . . . . .
Key No. . . . . Key No. . . . . .
Key No. . . . . Key No. . . . . .
Key No. . . . . Key No. . . . . .
Key No. . . . . Key No. . . . . .

Name . . . . . Title . . . . . .
(Please Print)
Company . . . . . .
Street . . . . . .
City . . . . . Zone . . . . State . . . . . .
Type of Business . . . . . .

MAIL THIS FORM TO
AIR CONDITIONING & REFRIGERATION NEWS
Readers Service Dept.
450 W. FORT ST. DETROIT 26, MICHIGAN

For more information about products advertised on this page use Information Center, page 28.



Appetizer, Salad Case Added to Coldin Line

KEY NO. G-445

NEW YORK CITY — Coldin Cabinet Co., Inc. recently announced addition of model AP92 appetizer and salad display case.

The unit has stainless steel interior and exterior, a gravity coil in top display section and storage section. A 14-in. slicing board is included on the model which comes with front fabricated in stainless steel, colored enamel, or matching Formica front panel, the firm noted.

Triple Thermopane front and double Thermopane in removable rear sliding doors help insulate the cabinet. Mirrors are installed inside each end to give impression of length. It is also available in continuous endless display for markets.

Made in 54-in. height by 19-in. width at top, 33-in. center, and 28½-in. at bottom. In standard models, it is available in lengths of 70, 92, 118, and 142 in. Stainless steel pans for salads, fish, pickles, etc. are available, the company explained.

NEW PRODUCTS shown at the Supermarket Institute Convention in Cleveland appear on pages 34 and 35 of this issue.

'Thermistors' Signal Temperature Changes

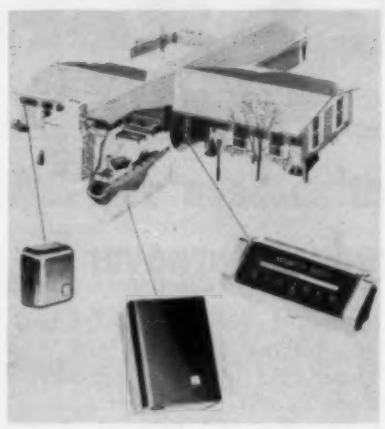
KEY NO. G-447

DETROIT—Thermally sensitive resistors referred to as "thermistors" are the elements that perform the important function in Detroit Controls Corp.'s new indoor-outdoor temperature control system called the "Weather Minder," the manufacturer announced.

Thermistors have been used only for scientific and experimental work before this time, the company said.

Mounted outside the home, the thermistor unit signals temperature changes (to within a fraction of a degree) to the control panel that serves as a central control between the room thermostat, the thermistor outdoor unit, and the heating equipment.

With these three units the Weather Minder system automatically raises indoor temperatures as the outdoor temperature falls, and conversely lowers indoor temperature during mild weather. For example, the homeowner simply



sets the pointer on the indoor thermostat at the temperature he feels most comfortable, and the temperature will be lowered or raised automatically as the weather changes.

The manufacturer states that this system is inexpensive, simple to install, is completely automatic, has no vacuum tubes, and requires no adjustments.

Unit Offers Large Chilling Chamber

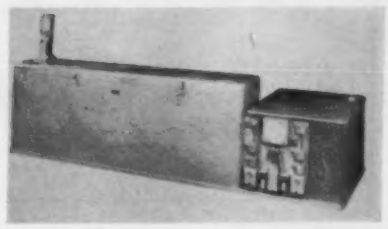
KEY NO. G-448

CINCINNATI—A new low temperature chilling machine was recently introduced here by Cincinnati Sub-Zero Products.

New unit eliminates many problems, the firm claims, yet obtains best properties of stainless steel through sub-zero quenching. Built-in system of wide range temperature adjustment and quick pull-down from 180° to -120° F. offer versatility, it was further indicated.

Model 3SR-120-47, with 47-cu. ft. chamber, has a net thermal capacity of about 6,000 B.t.u.h. at 120°. Using convection fluid, it will chill 250 lbs. of steel an hour from 80° to -120°, the company said.

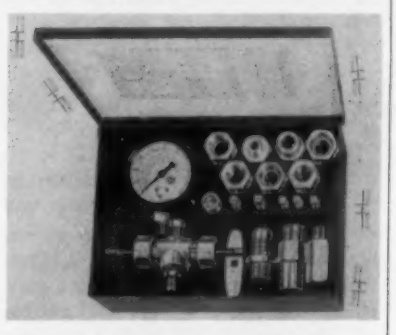
Net clear chilling chamber area is 120 in. long by 18 in. wide by 36 in. deep. This large-capacity unit accommodates typical guided missile or rocket stainless steel housing sheets of various gauges



up to 10 ft. long by 3 ft. wide. Electric welded pressure-tight, it is constructed of hot-dipped zinc-coated 7-gauge steel. Rounded corners add additional strength and safety, it was maintained. Refrigerant tubes completely surround the chamber with a "blanket" of sub-zero cold.

Water-cooled, the electronically-treated leak-tested condensing unit utilizes open-type compressors in a cascade refrigerant system. Compressors are belt-driven by two 5-hp. motors. Unit operates on 440 v., 60 cycle, three-phase.

Outside dimensions are 48 in. high, 180 in. long, 60 in. wide. Lid is counter-balanced. A mullion heater in channel cap prevents condensation, the company reported.



Hermetic Service Kit Uses Only One Valve

KEY NO. G-446

PITTSBURGH — The Kerotest Mfg. Co. has announced its new Hermetic Service Kit, designed to service all types of hermetic units with one valve.

This new kit eliminates the need for a separate valve for each hermetic unit serviced. A master valve is furnished with adaptors and stem extensions to service specific units. This master valve is equipped with a stainless steel stem to provide longer service life, at no added cost, according to Kerotest.

The kit is available with or without compound gauge.

IDEAL
Speed-Freeze
PRODUCTS
BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS.
(With Refrigerated Faucets)
WRITE
IDEAL COOLER CORPORATION
2953 EASTON AVE • ST LOUIS 6, MO

EASIEST HERMETICS TO INSTALL AND SERVICE

KELVINATOR EXCLUSIVE!
New Plug-In Relay is both a starting relay and thermal overload protector

★ Lighter weight; more compact, simplest mounting.
★ All parts for servicing located at one point, on one side of unit.
★ Nested-Fin Condenser for best heat dissipation—highest efficiency.
★ Over 150 replacement depots from coast to coast.

For additional information write Commercial Advertising Dept., Kelvinator Division, American Motors Corp., Detroit 32, Mich.

Kelvinator
Division of American Motors
Means More for Americans
SPECIALISTS IN REFRIGERATION SINCE 1914!

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

100% Pre-Packaging, Constant Refrigeration Seen as Reasons Behind Store's 'Phenomenal' Produce Turnover

MONTGOMERY, Ala.—Insuring that every produce item sold by the store is under refrigeration from the moment it is received until the customer places it in her shopping cart has been the background for a "phenomenal" produce turnover at the Piggly Wiggly of Montgomery supermarket in the southwest suburbs of this city, it is reported.

The new Piggly Wiggly store, is one of a group of five in the Alabama capital, and has put heavy merchandising emphasis on its 100% pre-packaged produce since opening day.

'Selling Public On Pre-Packaging'

"We are thoroughly sold on pre-packaging and we're selling the public on it as well," the produce manager indicated. "Our experience has been that pre-packaged produce eliminates spoilage and other waste, creates a far more attractive, long-lasting item for the customer's refrigerator, and carries more appeal, both from a visual standpoint and because of the absolute sanitation insured."

Experimenting with complete pre-packaging of produce in previous stores under the same management, the store has arrived at a system which has made it possible to sell a heavily increased volume with a label, packaging, and processing cost held to 7%, which is the average in produce departments which have no pre-packaging facilities.

PRODUCE area of Piggly Wiggly supermarket in Montgomery, Ala.

The store uses 15 varieties of paper board trays to package some 27 produce items, in addition to its own designs of cellophane and pliofilm containers. All of these are ordered in a soft green from the same supplier who sells the meat department and quantity buying thus cuts down on expenses, it was said.

There are only a few exceptions to the complete pre-packaging program, notably cabbage which doesn't lend itself well to wrapping in this way and some "hard" vegetables such as rutabagas.

About half a dozen items are supplied in the store already pre-packaged by the wholesaler or grower. Otherwise, the entire job is carried out by two pre-packaging girls in a completely air conditioned, separate room at the rear of the store.

Proud of Facilities

The manager is extremely proud of his facilities which exceed the normal amount of space and equipment given to a produce department. The entire program hinges on "refrigeration all the way," he stated, beginning with a 15 by 8-ft. cooler at the rear of the store which has a separate entrance to the unloading dock.

Produce is unloaded from refrigerated trucks directly into the cooler where it is sorted into metal containers which help to pull the temperature down to the desired 38 to 42° level more swiftly. At the opposite side of the cooler, another door opens into the pre-packaging room, an all-white sanitary room, 12 by 8 ft. which includes all necessary materials and equipment for pre-packaging a steady flow of produce to a 40-ft. self-service case at the front.

Visible Produce Space Helps Sell

Designed similarly to meet pre-packaging rooms, the produce space is completely visible to the customer shopping in the grocery area out in front. The sight of white-uniformed girls carefully washing, weighing, and pre-packaging produce has had a lot to do with the interest which the store has developed since September, according to the manager.

The pre-packaging room with a separate 5-ton refrigeration unit is maintained at an even 50° during all operating hours, a point which the store feels is responsible for the long life

(Concluded on next page)

Outstanding merchandisers look to TYLER—

PIONEER

of important improvements

Successful food store operators and Tyler have much in common—they're both used to constant improvement and the testing of new ideas. Operators *have to be* alert and progressive to get ahead.

And the record shows that Tyler research and development have *set the pace* for the equipment industry for many years!

Tyler engineers are the aggressive pioneers of new refrigeration, merchandising, labor-saving and cost-cutting features—they keep Tyler a big jump ahead, help Tyler customers make a bigger profit!

1935 *Welded-steel construction!* The drastic improvement that catapulted Tyler to national prominence.

1937 *Sectional, Steel clad Walk-In Coolers*—vital contribution to the supermarket era. (Freezers also available.)

1944 *First Open Frozen Food Cases* spark today's big frozen foods and ice cream volume!

1950 *Refrigerated Display Tables*—pioneered by Tyler for spot merchandising and fast sales.

1951 *Sectional and other Reach-In Storage Freezers*—new, handy frozen foods, ice cream storage.

1953 *Rolling-Cold* Packaging Conveyors—speed up packaging operation, protect meat quality, cut costs many ways.

1947 *Automatic Defrost with Blower Coils* brings new efficiency and savings to open-case refrigeration.

1948 *High Level Refrigeration* forces cooled air to all display and storage areas.

1954 New, low, merchandising height *Tyler Sales-Cases* (Series X) set entirely new industry standards.

1956 *Series Y Sales-Cases* keep Tyler a big jump ahead with improvements on the X Line.

30th YEAR

TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.

Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ont. (Export: Tyler Refrigeration International, C. A., Casa Bera, Urdaneta 119, Caracas, Venezuela)

Call Tyler Agent, listed in the Yellow Pages of your telephone book.

Tyler Refrigeration Corporation, Dept. AR-4, Niles, Michigan. Rush data on new Tyler ☐ Sales-Cases ☐ Rolling-Cold Packaging Conveyors ☐ Walk-In Coolers ☐ Storage Freezers ☐ Reach-Ins ☐ Condensing Unit Assemblies ☐ Store Planning.

NAME_____

ADDRESS_____

For more information about products advertised on this page use Information Center, page 28.

Other Items of Interest To Readers In the Commercial Field

"Important Role of the Qualified Commercial Refrigerator Dealer" is the subject of this week's editorial on page 22. Also of interest to commercial dealers and service firms will be the survey of "The Range of Charges for Commercial Refrigeration Parts and Service In New Jersey," which will be found on page 36.

New Products shown at the recent Super Market Institute Convention in Cleveland are pictured on pages 34 and 35. Additional New Products of value to readers in the commercial field appear on pages 28 and 29.

Store Modernization Termed Key To Customer Satisfaction In Joint Food Retailers Three-Day Management Course

CHICAGO—Some pointers on store modernization were presented during a three-day management short course held here recently for food retailers and their key personnel.

The course was offered jointly by the National Association of Retail Grocers and Florida State university's School of Business at International House on the University of Chicago campus.

There were 85 enrollees in the seminar from 31 states and Hawaii. They heard professors of business, store engineers, management consultants, successful retailers, and merchandising experts presents "Management Keys to Profitable Food Store Operation In 1957."

Store modernization was presented as the key to continuing consumer satisfaction. New concepts in layout, design, and space allocation were described by Ralph E. Ernst, architect and engineer, Chicago.

Through pictorial illustration, Ernst showed different styles of store architecture, from the circular store and quonset hut designs to the shopping center store striving for individual personality.

Urging retailers to create a store atmosphere that will provide the shopper with a feeling of well-being, Ernst said: "The woman shopper spends on the average of 40 cents per minute in a store and the longer she remains in your store, the more she will buy."

Ceilings, he said, should be light and reflective, floors light and walls, in general, in pastel shades. Wallpapers can be used for points of accent. "The color of shelving must not be overpowering," Ernst said. "Merchandising should stand out and attractive color labels should be shown to advantage."

Having ascertained that one parking space is worth $10,000 worth of business to the retailer, Ernst emphasized the need for adequate parking area. "Women, in general, are not expert drivers," he said, "and the 45° angle is the easiest angle for her to drive in and out. The minimum width is 9 ft. wide—ideally, it should be 10 ft.—and 18 ft. long."

He recommended parking space in front of the store no farther away than 250 ft. The shopper, he said, doesn't want to travel any great distance and will buy more groceries if the parking lot is near the selling area.

His further recommendations were a store that is neat, clean, and orderly, but not too orderly so that the customer won't want to disturb the symmetrical line of the stacking. Break up her line of vision with varying heights of shelving on the gondolas, he advised.

Electrical engineer Charles Masterson of Chicago emphasized the need for special lighting as stores grow larger. Lighting can be used to break up the ceiling, to highlight merchandise, to create sparkle. "Lighting is a decorative medium as well as a seeing source," he said.

"It can be used to move or hold traffic, to direct it to certain areas."

Produce Sales--

(Concluded from preceding page)

which most of his produce has shown in the store-developed packages.

Chilled Produce 'Lasts Longer'

"Produce carefully refrigerated before pre-packaging and kept chilled during the actual wrapping operations, lasts anywhere up to three times as long in cases," he said.

The duration of the pre-packaged produce fits well into the packaging program which is operated either by the manager, who spends most of his time out on the sales floor, or his head produce man. Both keep a close watch and as rapidly as turnover builds up on any produce item, issue orders for production of fill-in on that item to the pre-packaging room.

Through careful watch on the rate of sale, the store has been able to cut down sharply on the amount of carry over from day to day, and still doesn't run out.

'Unusual' Packaging Ideas

The Alabama Piggly Wiggly store has come up with some unusual packaging of its own, most of which is based on the use of paper board trays, instead of plastic pliofilm bags. Even such fruits as apples, for example, are arranged in neat rows of four, six, or eight, in soft green paper board trays, wrapped with "breathing" acetate which guards against condensation and these sell far more rapidly. Only a few items are merely "bagged" in transparent materials, the manager prefers to use the trays for most, he said.

He has been able to keep pre-packaging costs well within the 7% operating expense and this, in combination with the elimination of spoilage, and the heavy sales turnover which has been accomplished amounting to 10% of the total gross of the store, has made this "refrigerated all the way" pre-packaging program a definite success, it was indicated.

York Sets Service Unit

SAN DIEGO, Calif.—A complete dealer service division for air conditioning equipment, including replacement parts from compressors to washers, has been established by West Coast York Co.

RUBATEX OVERCOMES MOISTURE PROBLEMS

ALLOWS SIMPLE DESIGN—

CUTS PRODUCTION COSTS

Reasons why Gibson Refrigerator Company switched exclusively to Rubatex on 19 separate parts for their room and commercial air conditioning units.

"Gibson window units dehumidify and remove up to 12 gallons of moisture from the air daily. With Rubatex at sealing points—there's no danger of water leaking into room or dripping on side of building. If we used anything else in place of Rubatex, we would need a more elaborate design to handle the problem of moisture control."

James M. Sweedyk
Chief Air Conditioning Engineer
Gibson Refrigerator Company
Greenville, Michigan

Gibson was faced with a problem of finding a product that would provide an air seal which would prevent sweating and accumulation of moisture, plus a material to act as a sound deadener as well.

After exhaustive laboratory tests, rubber and other materials, which soaked up water and started dripping when the saturation point was reached, were ruled out. Rubatex Closed Cellular Rubber met test operations on every count and was specified for 19 Gibson air conditioning unit parts.

Five years of exclusive use of Rubatex still convinces Gibson engineers that Rubatex offers them the most effective sealing material they can buy—efficient moisture control, excellent sound deadening qualities, plus considerable savings in simple design and quick, easy production methods.

If you have a moisture control problem, it will pay you to check the advantages of Rubatex first.

Earl Palmer, Manager of Gibson's Heating and Central Air Conditioning, points to the Rubatex strips used to seal door on their commercial central air conditioning unit. He says, "Rubatex with its closed cellular structure repels water indefinitely. Water cannot penetrate even at cut edges. And that's important toward long lasting efficiency of our air conditioning units."

Rubatex G-200-C and G-208-C stocks are easily installed by assembly-line worker. An adhesive is applied to the metal, atop which approximately ½" wide strips of Rubatex are easily put into place.

RUBATEX
CLOSED CELLULAR RUBBER
SEALING STRIPS

Send for Free Sample and full details

RUBATEX DIVISION, Dept. A-2
GREAT AMERICAN INDUSTRIES, INC.
Bedford, Virginia

For full details and sample of the new Rubatex Closed Cellular Rubber Sealing Strip—print your name in space below, attach to your company letterhead and mail to us.

Name _____

For more information about products advertised on this page use Information Center, page 28.

Brinkoeter's Service Department Ideas

Says Distributor Needs Qualified Manager, Teamwork In Service Dept., Simple Record System, Normal Parts Stock, Training Plan

By J. A. Brinkoeter, First Vice President, Friedrich Refrigerators, Inc., San Antonio

"If I were a commercial refrigeration distributor, I would. . . ."

Four executives of refrigeration equipment manufacturers were given an opportunity to sound off on this theme at the 10th annual convention of the National Commercial Refrigerator Sales Association.

They put forward their pet ideas on store planning and engineerings services, sales pricing standards, service department organization, and the approach to voluntary chains and supermarket operations.

Below, J. A. Brinkoeter, first vice president of Friedrich Refrigerators, Inc., tells how he would organize his service department, if he were a distributor.

In a later issue Ray L. Greene, sales manager of Tyler Refrigeration Corp. will give his views on the approach to chains.

Victor Steg, regional accounts manager for C. V. Hill & Co., Inc., discussed store engineering in the March 25 issue and J. W. Krall, president of McCray Refrigerator Co., Inc., covered pricing in the April 15 issue.

If I were a distributor, I would organize my service department as follows:

I would want a serviceman-ager with the following qualifications:

Qualifications

a. A man with at least 10 years of actual general experience in the commercial refrigeration industry, both in service and installations.

b. An aggressive man with leadership ability, that can instill confidence in my customers by his approach, appearance, and manner of speaking.

c. Preferably one that had a small service organization either for himself or someone else where he had learned the cost of operating a service organization in general, especially the hidden costs.

d. A man that can build a service organization for my company, as the success of my service organization and the confidence of my customers is going to depend to a great degree on my service manager.

e. A man that would read all factory manuals and bulletins on the equipment that I am selling. One that would abide by the instructions from the factory and not use his own pet procedures, figuring that his methods are better than what the factory engineers recommend.

f. A man that fully appreciates the time and effort that has been spent by the design and test engineers at the factory to get the most efficient operation out of a piece of equipment.

g. A man that can build respect in his organization, and believes in the products that I am selling.

h. I would send this man to factory that I am representing to become fully acquainted with the factory service organizations and a general knowledge of the equipment he is going to service.

i. As soon as I had established the fact that I had the right man as service manager, I would want him to be part owner of my company. There is no incentive greater than to be part of a company and to participate in the profits that a man has helped to earn.

j. I would want my service manager to have two lead men, one for new installations and one for general service. These men would cooperate and assist each other as required.

k. I would demand that the entire service organization be loyal to me and my company. I wouldn't have a man in the service organization that has a habit of ridiculing other personnel in my organization, unless it was constructive criticism. In other words, I would want a *team*.

Monthly Profit, Loss Statement

I would want a good simple record system of work orders and parts used on each job. I would use a card system on all materials carried in stock, showing purchase orders, inventory balance, and withdrawals. I would insist that this be in balance at all times.

I would carry a normal stock of main parts so that I could give my customers immediate service without having to wait for parts to come from the factory.

I would want my bookkeeper to give me a profit and loss statement each month showing me exactly where I stood.

I would have my service manager, if he did not work on the new installations himself, to check them thoroughly on completion. He would also become well acquainted with the customers. Then if any trouble developed, the customers would call him and leave me free to sell new jobs.

I would want him to conduct a continuous training program. A short meeting with the entire service crew once a week. He would discuss any unusual service complaint and how it was remedied for the benefit of all personnel.

I would also at that time discuss any service bulletins received during that week from the factory. I would want my service department to be fully informed on all changes and latest information from the factory.

I, as the distributor, would furnish each serviceman with a service truck with compartments for normal materials and tools. I would also furnish power tools, gas drums, and acetylene rigs.

But each serviceman would furnish his own hand tools.

I would inventory the material on each truck once each week and check the withdrawals against usage as shown on various job tickets.

I would set up and include in the sales price on each piece of equipment a year's warranty charge against which I would charge all time and material used during the warranty period.

Any amount left over at the end of the warranty period I would set up as a warranty profit, holding back about 30% as a contingency fund. I would take the balance and divide it in two parts.

Would Give Bonus To Service Group

One part I would add to the profit of the company. The other

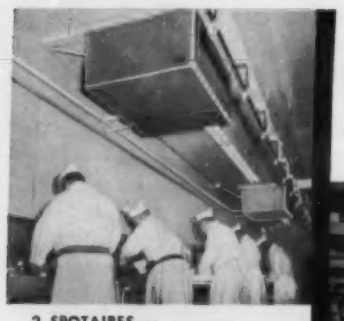
(Continued on next page)

REFRIGERATING ANATOMY of a super SUPER MARKET!

Panorama #3 Market, Reseda, California

by DRAYER-HANSON

Installing Contractor: National Refrigeration Sales of Los Angeles, Inc.



2 SPOTAIRES — Meat Cutting & Packaging Rooms

4 HOT SHOTS — Meat Storage Room

2 SPASAVERS — Dairy Cooler

1 FLOCOLD — Beverage Cooler

Had the Full Story, yet, on product-produce storage and refrigeration?

D-H equipment has solved "tough nut" refrigeration problems — since 1910.

Request bulletins, XX-1

1 HOT SHOT — Ice Cream Freezer Room

PLUS . . . 10 more units, individually installed.

d-h drayer-hanson

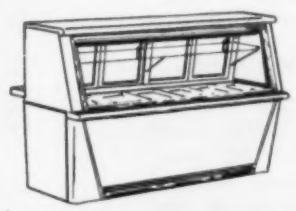
3301 Medford Street • Los Angeles 63, California

(Division of National-U.S. Radiator Corporation)

COUNT ON COLDIN

EVERY SIZE FOR EVERY NEED FOR EVERY FOOD RETAILER

Another Outstanding Coldin Cabinet



SALAD & APPETIZER DISPLAY CASE

Coldin Your Key To Better Refrigeration

Investigate the unlimited profit potential with Coldin Cabinets. Get the facts today!

Coldin Cabinet Co., Inc.

2800 Webster Ave., N. Y. 58, N. Y. CY 5-3311

REFRIGERATION DIVISION MANAGER

Progressive manufacturing concern has need of experienced manufacturing manager to assume control of refrigeration and air conditioning division. Applicant should have strong manufacturing background in sheet metal fabrication and assembly work. Job entails complete responsibility for engineering drafting, production and inventory control, and all manufacturing operations. Excellent opportunity in a desirable area. Middle Atlantic State. In reply, please submit previous employment records and state salaries received. Write fully to: Personnel Director, Post Office Box 466, Richmond, Virginia.

For more information about products advertised on this page use Information Center, page 28.

Service Dept.--

(Concluded from preceding page)

part I would give to the service organization as a bonus annually.

I believe I would build up an incentive for my service organization to install the jobs right and prevent a lot of service calls during the warranty period.

I would furnish uniforms to my service organization, paying possibly one-half of the original cost and charging them with the full cost thereafter.

I would insist all service personnel be neat and clean and absolutely courteous to all my customers at all times. At no time should they discredit any other personnel or equipment to my customers.

My service department is actually my company. The impression they leave with the customers will be the difference between good and bad relations.

Reasons for Selling Preventive Maintenance Service Policy

I would want my service department to sell a preventive maintenance policy for four reasons:

a. This would give my service department a year-round sustainer.

b. It would give the sales department a good relation contact with customers.

c. It would eliminate the possibility of the customers' calling in others that may not be as competent or have other reasons to keep the equipment from giving maximum service.

d. Last, but not least, it is economically sound business.

I would insist that my service department return all warranty parts daily and not allow them to accumulate. The serviceman replacing the part should fill out the warranty card completely so that no unnecessary correspondence would be required by my office or the factory.

I would use my service and installation personnel to repair my used equipment whenever they were not out on a job. I would keep a time card on the amount of time put in on the job, as a lot of time can be wasted if this is not checked.

Maintain 24-Hour Repair Service

I would maintain 24-hour service, using a telephone answering service and alternating my servicemen.

I, as a distributor, would want the respect and confidence of all my customers. I want each customer to feel I am able to furnish him all of his refrigeration and equipment requirements at a reasonable price.

I want him to feel that when he purchased this equipment from me, I had sold him the right equipment for his needs, that I will handle his installation in the best possible manner, and that I will protect his interests just as if they were mine.

I would expect my service and installation crew to carry out this thought and feeling as they are my company and are fulfilling my obligations.

I believe my service organization is one of the greatest contributing factors as to whether or not I will be successful.

Warehouse Has Aluminum-Clad Door Installation To Protect Food

MIAMI, Fla.—What is claimed to be the largest single installation of aluminum-clad storage doors in this country has been made at the new Miami warehouse of Food Fair Stores, Inc., according to Jamison Cold Storage Door Co., Hagerstown, Md., which supplied the doors.

Principal advantage of the 16 and 26 gauge aluminum cladding is a savings in weight, an important factor since many of the doors are large double doors 6 ft by 8½ ft. in size, it was stated. The aluminum-clad are reported cheaper than stainless-clad doors but more expensive than galvanized steel-clad doors. They are said to be highly durable.

There are 57 aluminum-clad doors of various types in the new warehouse. These are double super freezer doors, three small single doors, 23 large double doors, and 28 auto-close doors, the company explained.

All the doors are completely clad with aluminum, on both the fronts and backs. Others are additionally protected on the lower half with heavy gauge aluminum plate, the food firm indicated.

The new doors, specified by the warehouse, are insulated with sheets of reflective aluminum in multiple layers, it was stated.

"Other advantages of the aluminum-clad doors include their clean and bright appearance; resistance to corrosion, staining, spotting, and deterioration; simplicity in washing down and maintaining; and their contribution to refrigeration efficiency in preventing vapor penetration," it was further pointed out.

The warehouse, one of the most modern of its kind in the south, was built by Plaks Construction Co., Miami, Fla., to facilitate palletized handling by fork lift trucks, the company stated.

OVERHEAD track conveys sides of beef into cold storage chamber for meat at Food Fair Stores, Inc., Miami, Fla. warehouse. Both leaves of these double doors are aluminum-clad inside and out.

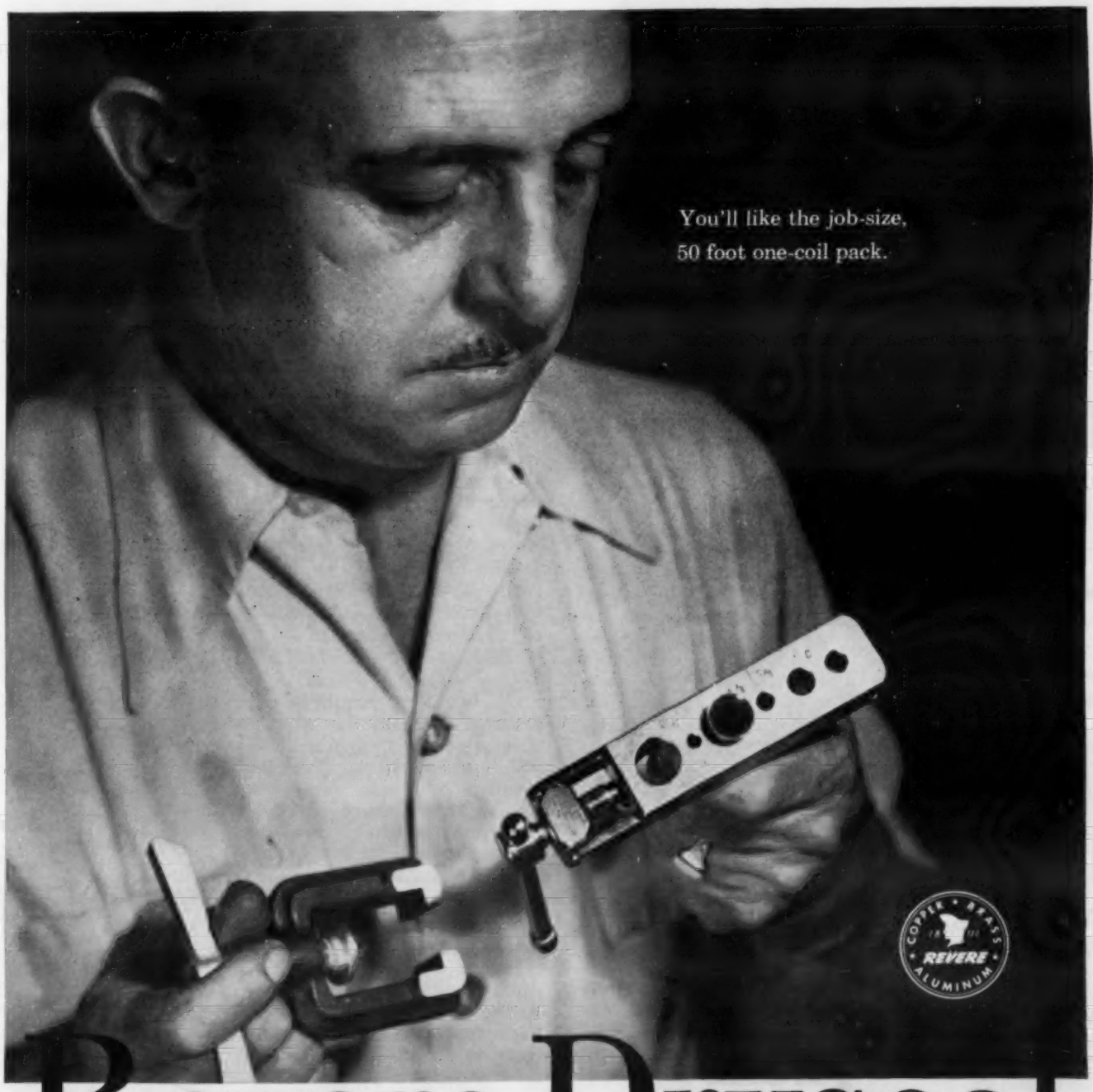
Norris Dispenser Opens New Hot Springs Plant

HOT SPRINGS, Ark.—Opening of the new Norris Dispensers, Inc. plant located five and one-half miles from here on Lake Catherine, is expected to be about April 1.

Refrigerated milk dispensers and other products will be manufactured at the plant, it was explained.

Split-free flare

Because DRYSEAL tube is dead-soft, flares are perfect every time. DRYSEAL bends finger-easy, too. Stays bone-dry, whistle-clean, mirror-smooth. The crimp is double . . . and *tube*-size to slip easily through fittings. Sizes ⅛" to ¾". Use DRYSEAL on your next job.



Revere Dryseal

COPPER REFRIGERATION TUBE

You'll find a Revere Distributor close at hand.

REVERE COPPER AND BRASS INCORPORATED, *founded in 1801 by Paul Revere*

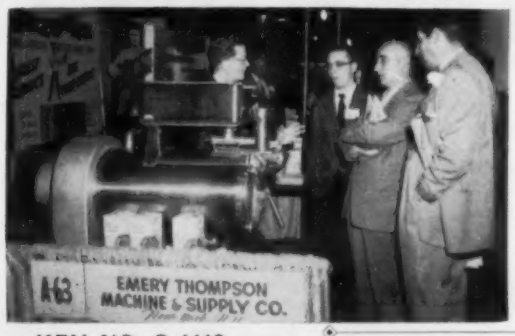
What Was New
At the Super Market Institute Show

Pictures on this and the following page are of products shown at the Super Market Institute show. For further information about the products, please use Key Numbers and consult the "Information Center" blank on page 28.

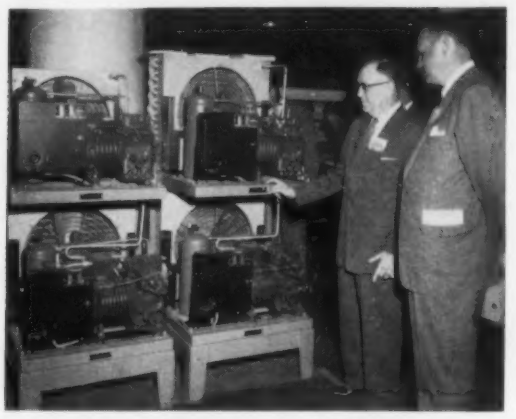
—KEY NO. G-449—
NEW SELF-CONTAINED refrigerated shelving for gondola-end display catches attention in Hussmann Refrigeration, Inc. booth. R. W. Sprouls, national accounts manager for Hussmann (center), demonstrates shopping ease of 5-ft. case for La Wayne Maynard (l.) and Albert Schmidt, Jr., of Schmidt Bros., Lansing, Mich.

—KEY NO. G-4410—
THERE'S 42 CU. FT. OF space in this 12-ft. 9-in. long frozen food merchandiser offered by Federal Refrigerator Mfg. Co., Gene Thompson of Publix Super Market, Lakeland, Fla. (l.) hears from John Faust.

—KEY NO. G-4411—
TAKING A HARD LOOK at Weber's 1958 line of glass meat cases in color are Ray Woodrich and Sid DeVries (center two) of Grandville (Mich.) IGA Super Market. They hear story from Hal Taylor (l.) Grand Rapids sales representative while S. Chule, Jr., looks on.



—KEY NO. G-4412—
JOHN TREBLE, Emery Thompson Machine & Supply Co. representative in Detroit (l.) finds an interested audience for his story on the Emery Thompson 40-qt. batch ice cream freezer. Listening attentively are David and Jacob Gelfand and Leonard Gutman, all of Tom's Northwood Market, Detroit.



—KEY NO. G-4413—
TYLER RACK FOR stacking air-cooled condensing units in supermarkets is shown to T. G. Parham of Red Food Stores, Chattanooga, Tenn. (l.) by Paul Jackel, national accounts sales manager for Tyler Refrigeration Corp. Racks are 30 in. wide and 3 ft. deep. They can stack condensing units two or three high

—KEY NO. G-4414—
NEW 12-FT. ISLAND FROZEN FOOD merchandiser shown for the first time by McCray Refrigerator Co., Inc. is appraised by Walter Goad, McCray distributor in Evansville, Ind., and Clair L. Miller, McCray representative in St. Louis.

Vendo '56 Sales Reach $42,075,745

KANSAS CITY, Mo. — Total sales of Vendo Co. and its wholly-owned subsidiary, Vendorlator Mfg. Co., which was acquired last September, reached $42,075,745.

Exclusive of the Vendorlator operation, volume was $25,377,362, compared with $20,799,450 in 1955, an increase of $4,577,912.

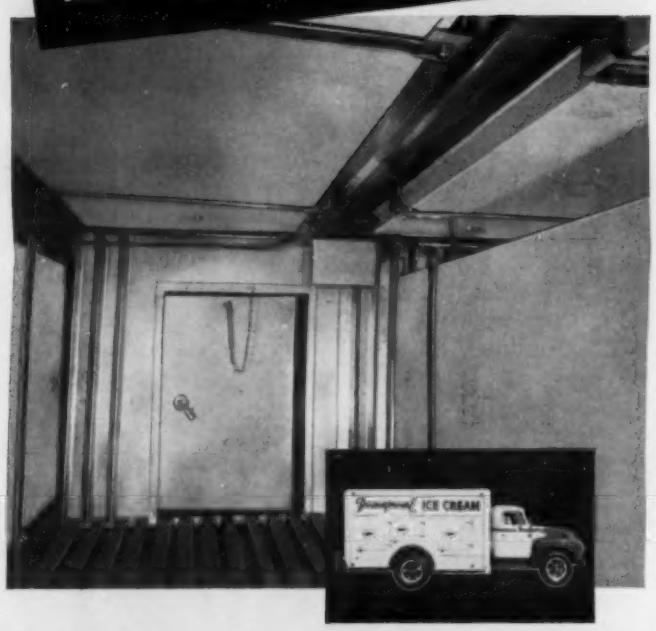
Consolidated earnings were $1,659,508, equal to $1.43 a share on the outstanding 1,147,577 common shares. The 1955 earnings of Vendo were $842,379, or $1.01 a share on 810,000 shares outstanding. Preferred dividends were $23,336 in 1956 and $25,620 the previous year.

Exclusive of the Vendorlator operation, which showed a net loss of $18,485 last year, Vendo earnings totaled $1,677,933, equal to $2.04 a common share on the 810,000 shares outstanding before issuance of additional common to effect an exchange for Vendorlator shares.

La Crosse Vendors OKd By Orange Crush Co.

LA CROSSE, Wis. — The Vending Machine Div. of La Crosse Cooler Co. announced that it has obtained approval of its vending equipment from the Orange Crush Co. of Evanston, Ill.

For constant, dependable temperature control install *Cold-Cel* TRUCK PLATES



Engineered to Maintain Any Temperature Required Throughout The Trip!

In sizes to fit any application. May be installed in a horizontal position suspended from the ceiling, in a vertical position along the walls, or as a partition. Can carry eutectic solutions ranging from −59° to +26°.

In standard thicknesses and connections: 4-Connection 2⅛" and 2⅝"; 3-Connection 1½"; 2-Connection 1".

DOLE REFRIGERATING COMPANY
5920 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.
In Canada: Dole Refrigerating Products Limited
44 Elgin Street, Brantford, Ontario

Write for "Cold-Cels in Action" — a pictorial brochure — or Engineering Catalog CE.

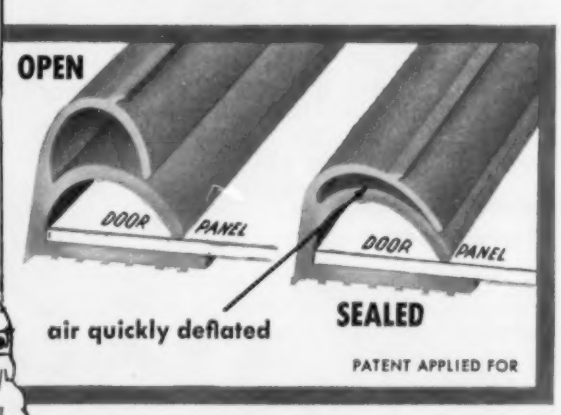
Maximum Refrigeration Efficiency DOLE THE Cel LINE

specify DOLE *Cold-Cel* TRUCK PLATES

*a light touch** AND IT'S **SEALED!**

Jarrow's Safeseal Gasket... developed for the new safety-type spring and magnetic refrigerator and freezer doors.

* as low as 4 lbs. pressure



Positive seal is assured with as low as **4 lbs. pressure** because "Safeseal's" soft-acting rubber is sensitive to the lightest touch.

"Safeseal" can be made to your exact requirements for any low-tension spring or magnetic door, based on this patented design. Send us blueprints of your doors.

Jarrow experienced engineers can help solve your every gasket problem. No cost or obligation for this service. Write today.

JARROW PRODUCTS INC
Door Gasket Specialists for Nearly a Third of a Century
420 NORTH LA SALLE STREET • CHICAGO 10, ILL.

For more information about products advertised on this page use Information Center, page 28.

—KEY NO. G-4415—
MIRROR BACK, giving product visibility from a distance is feature of new Sherer-Gillett Co. frozen food case. J. H. Coolidge, (facing camera) president of Sherer, explains details to Ed Barth (l.) and Arthur D. Holland of Hill Refrigeration Co., Inc. of Brooklyn. Sherer also showed a new self-contained, self-defrosting 5-ft. island type freezer and a meat display case.

—KEY NO. G-4416—
"SPACE-MASTER" CANOPY offers additional non-refrigerated display space over Warren frozen food case. Frank Canfield (l.) of Foremost Dairies, Dallas, Texas, hears the merchandiser can also be used for ice cream display from Earl Barton, director of advertising for Warren Refrigerators, and R. H. Celli, Warren sales manager for Texas and Louisiana.

—KEY NO. G-4417—
IN "CONVERSATIONAL STAGE" is this vertical display for frozen foods exhibited to supermarket operators by C. V. Hill & Co. M. S. Schellinger, Hill district sales manager (facing camera) explains flexibility of unit with its adjustable shelves, slides, and basket storage to Irving Gladstein (l.) and Harry Brodsky, of Shop-Rite Super Markets in Verona and Caldwell, N. J. The unit is not in production.

—KEY NO. G-4418—
STORY ON KOCH "SELL-O-VISION" merchandisers—an island frozen food case in foreground and three-shelf dairy case in background—makes happy listening for Charles Tsiotsios of Eastern Refrigeration Service, Manchester, N. H. (r.) as Harold Kain, vice president in charge of sales for Koch Refrigerators, Inc., tells it.

Poultryman Pioneers Chilled Egg Vendors

ROCHESTER, N. Y.—Ernest W. Huppert, largest poultryman in the area, is pioneering in use of vending machines for selling eggs. One machine is set up in front of his house and one outside the Monterey Diner, it was explained.

The machines are similar to milk vending devices and they are electrically heated in winter and refrigerated in warm weather. The eggs are always fresh-laid, since Huppert has 7,000 hens and various other outlets for the product.

Cornell university sparked the vending idea by ordering five machines and placing them with poultrymen on an experimental basis.

Now the devices are being mass produced.

The machines dispense two sizes, medium and large, and Huppert says about one third of them are sold between 8 p.m. and 8 a.m.

Ice Cream Salesman Dies In Own Truck Freezer Unit

COLUMBUS, Ohio — A recently-wed, 24-year-old ice cream salesman was found dead in the freezer compartment of his truck, it was reported here.

Franklin county Coroner Robert A. Evans ruled Bradley Kincade McDonald had died of asphyxiation and suffocation in the compartment.

Fire department emergency squad men said McDonald had spent nine hours in the compartment where the temperature was 20° below zero.

The body was discovered by Harry Wolman who operates a pharmacy on McDonld's delivery route. Wolman opened the freezer compartment when he realized the salesman was late with a delivery to his drugstore.

The freezer door was unlocked, the Fire Dept. said, and inside was an emergency release to prevent a person from being trapped.

However, Dr. Evans stated he will ask for an investigation of the freezer door which he called "a bear-trappy type of thing." He said, "You could get in there and not get out."

Robert L. Gibbs,
General Sales Manager

big things

▶ *are happening in Port Huron*

Port Huron, Michigan is now in the last throes of a long hard winter . . . and it won't be long before we see the first welcome signs of spring. To me, spring is a most exciting time because it is the forerunner of many wonderful things to come. This year will be an especially exciting one for us here at the Mueller Brass Co. because we are introducing one of the most interesting products that has been developed in the past 25 years . . . by us or anyone else. That may sound like strong talk, but, believe me, it's true . . . and everybody in our organization, from design engineers to salesmen, is really enthused.

As you have seen from our recent advertisements that have been running in this publication, we are introducing a line of products for 1957 that are "out of this world". . . and the biggest star of them all is our new DRYMASTER FILTER-DRIER. This new filter-drier combines in one unit all the best principles of filtering and drying that have ever been developed. We have been building filter-driers for the past 25 years, and we feel that we know a little bit about what it takes to make the best performer you can get anywhere at any price. Again, that's strong talk, but we firmly believe it because we have a filter-drier *that's new all the way through*. And, it works like a charm! We've taken all the best principles of filter-driers and put them in one package.

DRYMASTERS are now in production at Port Huron, and soon the first shipments will be on their way to your wholesaler's. Your wholesaler will also have a fabulous new cut-away display so that you may see first hand where the DRYMASTER gets its performance. There will also be full-color handbooks that give you the whole story. We are launching a big promotion campaign because we believe that the all-new DRYMASTER FILTER-DRIER really warrants the best . . . it's that good.

About all I can say in closing is . . . "don't do a thing about ordering filter-driers 'til you've seen our new DRYMASTER, the really all-new one that's clean, functional in design . . . "out of this world" in performance and down to earth in price.

See them soon at your wholesaler's, you'll be glad you waited . . . and be sure to see our 4-page full-color insert in the May issues of all leading refrigeration and air-conditioning journals.

Robert L. Gibbs

MUELLER BRASS CO.

PORT HURON 13, MICHIGAN

218

N. J. Commercial System Service Pricing Surveyed

Range of Charges for Commercial Refrigeration Parts and Service In New Jersey

Item	High	Low	Most Frequent
1—Minimum Labor Charge.. (Including 1st half hour per man)	$8.25	$4.50	$5.00
2—Hourly Charge per Man Thereafter	$6.25	$4.50	$5.00
3—Compressors (Markup) ..	50%	33⅓%	50%
4—Condensing Units (Markup)	50%	25%	50%
5—Belts (Markup)	100%	20%	50%
6—Coils and Blowers (Markup)	50%	33⅓%	50%
7—Controls (Markup)	100%	40%	100%
8—Expansion Valves (Markup)	100%	40%	50%
9—Water Valves (Markup)..	100%	40%	50%
10—Shut-off Valves (Markup).	100%	40%	50%
Refrigerants			
11—Refrigerant-12 per lb.	$1.70	$1.10	$1.50
12—Refrigerant-22 per lb.	$4.00	$1.85	$2.75
13—Methyl Chloride per lb....	$1.90	$1.00	$1.50

Motors, Minor Repair	High	Low	Average
14— ¼ hp.	$28.00	$12.65	$19.25
15— ⅓ hp.	$36.00	$14.50	$23.00
16— ½ hp.	$42.00	$16.50	$28.00
17— ¾ hp.	$55.00	$20.00	$35.25
18—1 hp.	$58.00	$28.50	$37.75
19—1½ hp.	$64.00	$30.00	$44.00
20—2 hp.	$76.00	$37.50	$51.50
21—3 hp.	$75.00	$40.00	$57.00
22—5 hp.	$100.00	$40.00	$70.00

(Concluded In Col. 4)

Learn Range of Labor Charges, Prices, Markups

DETROIT — The range of labor charges, prices of service maintenance contractors, and markups on system components for commercial refrigeration systems, as charged by a group of commercial refrigeration and service contractors in the state of New Jersey, has been surveyed by AIR CONDITIONING & REFRIGERATION NEWS, and is reported in this issue.

The survey of the pricing practices was made with the cooperation of the Refrigeration & Air Conditioning Contractors Association of New Jersey, Inc., which organization offered assistance in providing names to be surveyed, and in backing the plan. (This does not mean that the survey represents results from the complete membership of the association.)

Part of the survey was concerned with the range of charges for air conditioning parts and service, and this was reported in the Feb. 25 issue of the NEWS.

Figures Show High, Low Charge

In this part of the survey on charges used in connection with the servicing of commercial refrigeration systems, the figures given reflect the "high" and "low" charge indicated in the individual returns from the survey, on such items as Minimum Labor Charge, Hourly Charge, and markups on parts and components. Because an "average" price would come out to some odd dollars and cents, the "most frequent" price or markup is given for the items.

Average Worked Out on Contracts

On the survey of prices charged on yearly service maintenance contracts, the high and low prices for various type units is given, together with an average worked out to a quarter of a dollar.

Those contractors responding to the survey were asked to identify the community in which they operated in terms of the population size. Following are some of the variations in average labor charges, between contractors operating in communities of over 100,000 population, and communities of less than 100,000 population.

Labor Charge	Over 100,000	Under 100,000
Minimum Charge	$6.00	$4.85
Hourly Charge	5.50	4.75

Contractors from communities under 100,000 population who replied to the survey employed from two to 10 service and maintenance employes, the average being seven servicemen each.

In the over 100,000 population areas, those contractors replying employed from two to 20 service and maintenance men, the average being seven employed.

Range of Charges for Commercial Refrigeration Parts and Service In New Jersey

(Concluded from Col. 2)

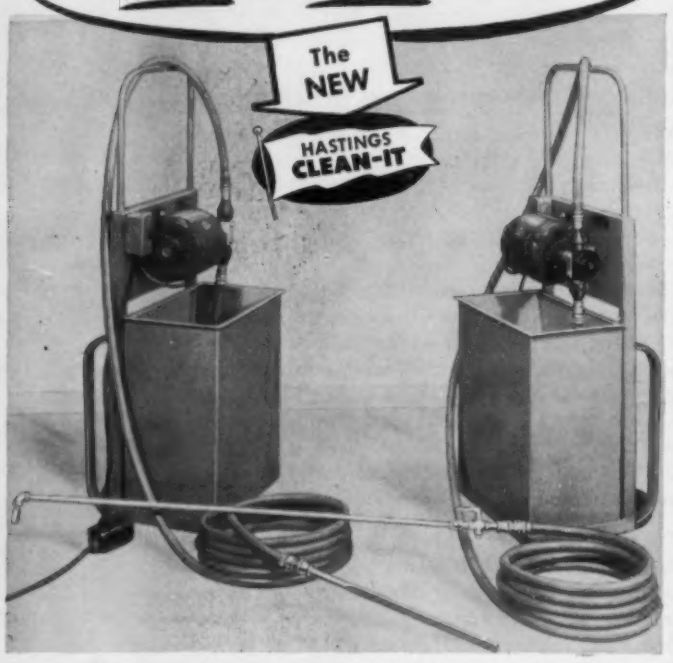
Motors, Major Repair	High	Low	Average
23— ¼ hp.	$42.00	$20.00	$29.75
24— ⅓ hp.	$44.00	$24.00	$35.00
25— ½ hp.	$52.00	$28.00	$41.00
26— ¾ hp.	$57.00	$38.00	$49.00
27—1 hp.	$68.50	$56.00	$61.00
28—1½ hp.	$85.50	$65.00	$75.75
29—2 hp.	$105.00	$84.00	$94.00
30—3 hp.	$128.00	$115.00	$124.00
31—5 hp.	$150.00	$150.00	$150.00

Service Maintenance Contract	High	Low	Average
32— ¼ hp.	$55.00	$25.00	$38.50
33— ⅓ hp.	$55.00	$30.00	$40.50
34— ½ hp.	$65.00	$35.00	$46.75
35— ¾ hp.	$85.00	$40.00	$58.00
36—1 hp.	$90.00	$50.00	$67.00
37—1½ hp.	$120.00	$60.00	$83.50
38—2 hp.	$150.00	$75.00	$107.00
39—3 hp.	$200.00	$90.00	$127.50
40—5 hp.	$155.00	$155.00	$155.00

(There was some variation in the cost of the Service Maintenance Contract according to the age of the system, but it was not generally very great. Apparently these prices cover the condensing unit only, rather than the system. One respondent stated that he charged "an additional $7.50" for each additional coil, expansion valve, blower motor, and solenoid if the user wanted the system covered. Also, an additional $7.50 was charged for a water-cooled system.)

THE ANSWER TO ALL YOUR CLEANING AND DESCALING PROBLEMS

The NEW HASTINGS CLEAN-IT



A BIG TIME AND MONEY SAVER!

FOR CLEANING ALL TYPES OF CONDENSERS

COIL SURFACES — COIL TUBES
COOLING TOWERS — BLOWER WHEELS
WATER HEATERS — AIR HANDLING UNITS

FEATURES INCLUDE
ACID-RESISTANT TANKS • ACID-RESISTANT PUMPS • UNITS REVERSABLE FOR PRESSURE OR SUCTION • SNAP-ON FITTINGS • RUBBER TIRED WHEELS • STAIR-SKIDS

HASTINGS CLEAN-IT — Eliminates the hazards and mess of old-fashioned cleaning methods UNCONDITIONALLY GUARANTEED

Write for Prices and Bulletin AC-47-C

HASTINGS AIR CONTROL, INC. 3215 Leavenworth Omaha 5, Nebraska

Looking for a Business to Buy . . . ?

Check the Business Opportunities Section in the classified advertising columns.

WE CAN DO THE WORK OF 4 MEN IN HALF THE TIME . . .

with the NEW HASTINGS HOIST-IT

SAVE MONEY, TIME, TROUBLE

- Raises 100 to 4,000 lbs., as high as 18 feet
- Saves hundreds of man hours — often pays for itself on the first job
- Will not damage finished ceilings

HASTINGS HOIST-IT — COMPLETELY SAFE Eliminates hazards of old fashioned lifting methods UNCONDITIONALLY GUARANTEED

Write for Prices and Bulletin AC-47-H

HASTINGS AIR CONTROL, INC. 3215 Leavenworth Omaha 5, Nebraska

For more information about products advertised on this page use Information Center, page 28.

Urges U. S. Follow ARI Standards--

(Concluded from Page 1, Col. 5)

he doesn't build according to our standards.

"But there is a great deal we can do—and are doing—to bring about voluntary compliance. We are instituting what we call our 'compliance program.' This involves a licensing or contractural relationship in which a manufacturer agrees to follow certain test procedures and submit test data to ARI showing that his equipment does conform to our standards," Lawler said.

"Having done this, he receives the right to use an ARI label or seal stating that his equipment has been built in accordance with the standards set by the institute.

PROGRAM HAS 'TEETH'

"Does such a program have any 'teeth' in it? Yes," says Lawler.

"Let's suppose someone charges that a unit carrying an ARI seal does not actually conform to ARI standards. In that case ARI will have the equipment tested by an independent laboratory to determine whether the manufacturer's right to use the seal should be withdrawn. If the tests do indeed show that the manufacturer is not living up to his claims, ARI will have the right to withdraw the seal from him.

"A compliance program has already been put into effect by the room air conditioner section of the industry," Lawler told the symposium. "One is now being finalized for the residential and commercial packaged units section.

"Our executive committee approved this step in March and the board of directors of ARI will meet to act on it in May. We hope that the compliance program for the packaged units will go into effect within the next 12 months or so. When it does, the government can, if it wishes, limit buying only to those units that carry the ARI seal," he suggested.

SIMILAR PROGRAM FOR CENTRAL UNITS

"A similar compliance program for the manufacturers of heavy central unit air conditioning equipment is now in the formative stages. We hope it too will go into effect in the not too distant future," Lawler declared. "Of course, we already have standards on most of the component parts of the big units — compressors, condensers, liquid chilling packages, and the like."

Besides the standards and compliance programs, the air conditioning industry has at least three other important resources to offer government, Lawler pointed out.

He listed these as "ample manufacturing capacity," "technical skill in analyzing realistically a buyer's actual air conditioning needs," and "facilities for aiding important research programs."

"I think we can all agree at the outset that air conditioning long ago jumped from the category of luxury to the category of competitive necessity in the business world," Lawler declared.

"The benefits of a cool, clean, properly conditioned atmosphere in terms of efficiency and working morale have become obvious to those who have experienced this blessing. The efficiency of office personnel performing mental work drops sharply after the temperature goes above the mid-70's. At 85° there is a 20% loss of efficiency and at 95° a 50% loss. In the heat of summer, offices and government agencies without air conditioning often have to shut down work and let employes go home. This means a great loss in man hours.

"Moreover, companies or agencies that don't provide air conditioning find it hard nowadays to hire new workers. The economic forecasters insist that this nation is going to have an acute manpower shortage for many years to come.

"If they are right, the government will be forced to compete even more vigorously than today to obtain the working staff needed to operate offices and agencies with the same high quality of service. For both industry and government there is a big economic stake in cool and comfortable indoor climate.

U. S. CAN USE COOLING INDUSTRY FACILITIES

"I have said that the air conditioning industry has important facilities and programs which the government can use to advantage. The first and most obvious of these is ample manufacturing capacity.

"This is a factor of considerable importance. A very large impact of orders would obviously be created by the air conditioning of all government-owned structures, and it is prudent to ask whether the industry—as presently constituted—could efficiently and economically handle such a volume of business. The answer is yes. Ours is a rapidly growing industry, expanding and adding new facilities in almost geometric proportion. We have the facilities to meet heavy demands and exacting deadlines," Lawler said.

"Second, the air conditioning industry is able to offer the technical engineering know-how that comes from the hard school of experience.

"I am not referring only to experience in design and manufacturing gained from hundreds of millions of dollars of installations. That is obviously important, but it is something I think we can all take for granted in an industry and that is now more than 50 years old. What I am talking about more particularly is technical skill in analyzing realistically a buyer's actual air conditioning needs," he emphasized.

'SHOULD BE TECHNICIANS ON COOLING OF AIR'

"It is also desirable to make sure that technicians working on air conditioning problems are experts on the cooling of air and not just heating. Problems of cooling, cleaning, and dehumidifying air are, in many respects, very different from those of handling heating units. I can speak on this point with conviction since my own company—Worthington Corp.—is in both fields," commented Lawler.

"A third element of importance to government buyers is the program of standards being developed by the industry to protect customers, both government and private.

"As manufacturers it is our obligation to give our customers an honest product, honestly rated, honestly priced, and honestly advertised.

"The Air-Conditioning & Refrigeration Institute has dedicated itself to the task of establishing standards that are fair and workable and at the same time effective. We have those standards now. True, they haven't always been observed as carefully as we would like. The job at ARI is to publicize the fact that they do exist and to encourage all manufacturers, big and small, to design and rate according to those standards and abide by them.

"At present, ARI has 39 individual standards and one collateral publication relating to various types of equipment and products. The standards fall into three general categories:

"1. Equipment standards.

"2. Application standards.

"3. Rating and testing standards.

"The majority of ARI standards pertain to equipment.

"These standards are not intended to tell the manufacturer how to build his equipment. They seek simply to measure, in some uniform manner, the characteristics, capacity, and performance of the equipment that is built.

"A refrigeration system is in essence a heat pump—absorbing heat from a structure at a comparatively low temperature level and pumping it up to a higher temperature so that it can be disposed of outside of the structure.

"The capacity of a given system will vary depending upon the temperature levels between which it pumps the heat. The capacity will be relatively high when pumping through small temperature levels and will diminish as the temperature levels become greater.

"Therefore, it is essential to the buyer that he have a dependable yardstick or a 'standard' whereby he can compare the capacity of apparatus offered to him by different manufacturers.

"The ARI equipment standards and rating and testing standards are designed to give the buyer just such a yardstick.

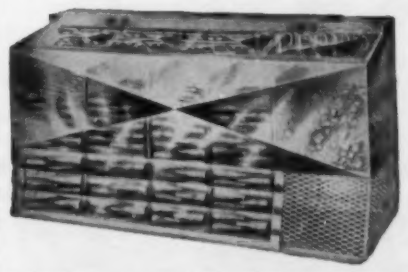
"The ARI standards for room air conditioners and for residential and commercial packaged air conditioners express equipment capicity in terms of B.t.u. per hour at specified temperature levels at which they most commonly operate.

ADDED RESOURCE

"A fourth and final resource of the air conditioning industry is our facilities for aiding important research programs. The effect of climate on weapons, clothing, engines, aircraft installations, aircraft equipment, and other items is now being intensively studied in various parts of the country.

"At the Detroit Tank Arsenal, for instance, the effect of sub-zero polar climate on equipment, machinery, and men is being researched," Lawler indicated.

"A CASE OF COOL JUDGMENT"



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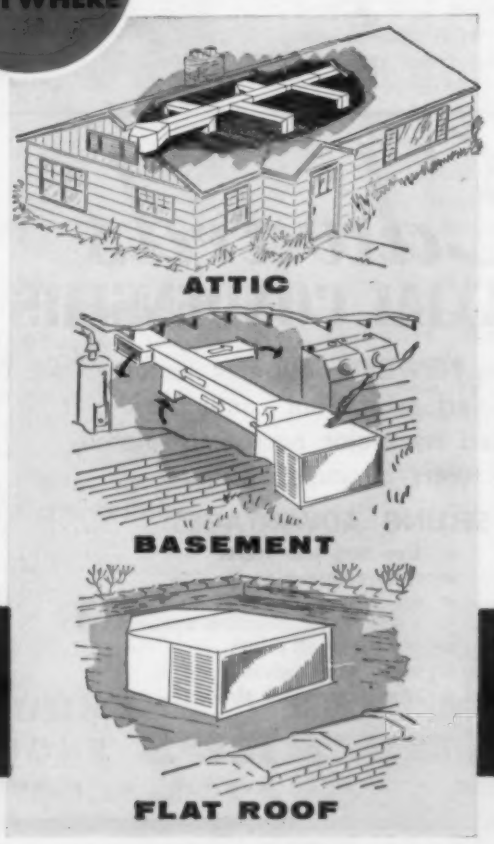

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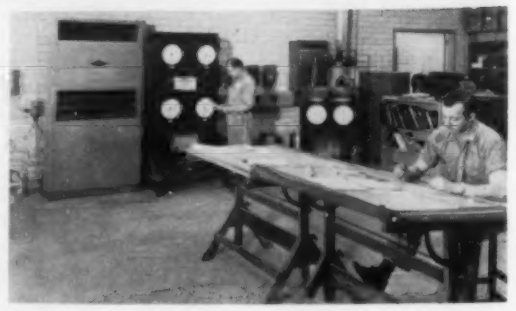
CEDAR RAPIDS, IOWA

14 Free-Standing Heat Pumps Air Condition Heat Pump Mfg. Plant Year-Round

START of final assembly line in new headquarters of American Coils Co., Farmingdale, N. J. First step in final assembly is at left where compressors are mounted on steel frames. Next steps are addition of blowers, coils, electrical equipment, and smaller parts. Just beyond hoist, line divides into two parallel tracks for maximum assembly capacity. There are 600 ft. of 30-in. wide rollers.

"OPERATIONS TEAM" of American Coils are Michael Parcaro, president; James Turner, executive vice president, and Pete Hatcher, general sales manager.



ENGINEERING and testing laboratory. Instruments at rear are used to record air temperatures, air velocities, electrical values, moisture content of air, and refrigeration capacities.

Low Installation and Servicing Cost Cited as Reason To Use Units In North

FARMINGDALE, N. J.—The world's largest installation of packaged heat pumps is in operation at the new plant of the American Coils Co., the firm reported at a recent celebration at the new production facilities.

The 63,000-sq. ft., single-story office and manufacturing building, located 57 miles from New York City, is equipped with 14 free-standing heat pumps totaling 123 hp.

These units are located throughout the plant to provide maximum zone comfort. Any single unit can be separately controlled by employes in that zone to adjust the temperatures to their own requirements.

According to American Coils President Michael Parcaro, the new plant is one of the few to employ heat pumps for year-round air conditioning. He said that many companies regarded this type of heating-cooling arrangement as impractical in northern latitudes, and expressed the hope that successful operation of the model heat pump installation in the new American Coils plant would bring an increasing trend to heat pumps for manufacturing, commercial, and residential applications.

Parcaro cited low installation cost as possibly the biggest single advantage to the free-standing type of heat pump installation which combines both heating and cooling in a single unit. Heat pumps alone can save up to 25% of the average installation and servicing costs of conventional systems, he said. Greater savings can be realized in areas where charges for power are exceptionally low. And, he added, further cost reduction is possible through the ductless type of installation.

505-FT. DEEP WELL SUPPLIES WATER

Water for the heat pump system of the new American Coils Co. plant is supplied by a 505-ft. deep well located just outside the plant building which has a capacity of 350 g.p.m., delivered at an approximate pressure of 60 p.s.i.

A 10,000-gal. capacity storage tank was installed which permits each heat pump to be equipped with automatic water-saving valves which permit automatic operation of each heat pump for peak efficiency. This also provides ample water for domestic and fire purposes.

Water is sent into the plant at 40 to 60 p.s.i. and is supplied to the individual heat pumps through all-copper piping buried in the concrete floors. The automatic valve on each heat pump controls head pressure on each pump's individual supply line. Water return lines are also of copper and they connect each heat pump to a central 12-in. tile drain.

All piping is on 1, 2, 3, and 4-in. diameter with the exception of 6-in. line from the well pump to the storage tank.

The storage tank itself is covered with 2 ft. of earth which is in turn covered with black top. This prevents any temperature rise or drop in the water contained in the tank. Thirty-six feet long, the tank is of all steel construction, ASME coated and is coated inside with a material designed to prevent accumulation of scale and mineral deposits.

The heat pump system at the new manufacturing plant had its first severe test not too long after being put into operation, when the outdoor temperature dropped to 6° F. during a week-long cold wave. Company officials said that the heat pumps, operating at around 60% of capacity, held temperatures at 70 to 72° F. inside the 63,000-sq. ft. building. They also claimed that the operating cost in this period was less than with a conventional steam heat system.

NEW PLANT MANUFACTURES FULL LINE

In its new plant, American Coils manufactures its ACI line of air conditioners, heat pumps, packaged water chillers, unit coolers, and forced draft cooling towers. The firm was formerly located in Newark, N. J. The move to its present, new quarters was completed in '57.

As part of the complete line of American Coils' products are two new air-cooled liquid chillers. The new models are ACI-AA, a self-contained unit with compressor, chiller, and air-cooled condenser within one cabinet available in 2, 3, and 5-hp. sizes and the ACI-AR, a remote air-cooled condenser available in 3 to 15-hp. sizes.

(Continued on next page)

REMCO E-Z-SEE LIQUID INDICATORS ARE STANDARD FOR ORIGINAL EQUIPMENT

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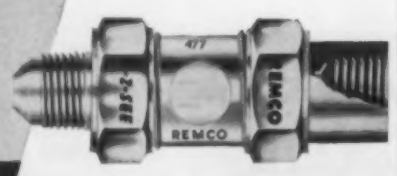
Remco hermetically sealed E-Z-SEE Liquid Indicators are used by more than 60 manufacturers.

They are available in brass or cadmium plated steel with flare or sweat connections. Sweat connections are swivel so that they can be soft or silver soldered with no danger from heat.

All steel indicators are UL approved for Freon-12 and -22. Write for low net prices and Bulletin R-11 for engineering details.



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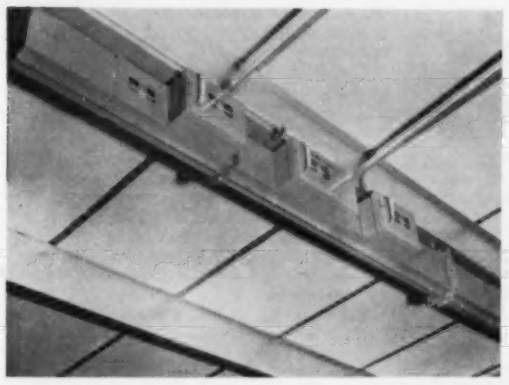

DETAIL of plug-in bus duct system which is credited with helping AC get into production 30 days ahead of schedule due to speed with which duct itself was installed plus the time savings in connecting major equipment due to plug-in feature. New equipment can be plugged-in every 10 in. along length of duct. Duct itself can be easily moved, allowing for changes in machine placement

OVER-ALL view of part of production area showing heat pumps. Four of the 14 water-to-air heat pumps used to warm and cool the new plant are shown here in center foreground, and background extreme left, center, and far right. Copper piping leading from left side of unit connects 350 g.p.m. supply and to drainage systems.

NEW general offices of the firm show plant is lit by combination fluorescent ceiling fixtures and natural light from 3-ft. high window that extends almost entirely around the building. Floors are asphalt tile, ceiling aluminum-stripped acoustic tile. A 7½-hp. heat pump along rear wall heats and cools the office.

Heat Pumps Air Condition Plant--

(Continued from preceding page)

Both models use air-cooled condensers and are intended for use wherever wet cooling is called for in industrial processing or air conditioning. Press rollers were singled out as a unique application ideally suited to cooling with chilled water going through the rollers to cool the printed sheet, allowing faster press speeds.

Three types of installations are possible with the completely self-contained ACI-AA models. As condensers are built-in and located at the rear of the unit they may be installed with the condenser flange extending through an opening into the outside air. Or they may be installed in a breezeway. Another possibility, the company pointed out, is to install them well inside a building and use ducts to carry off the heated air from the condenser.

Sized for high ambient locations, condensers of the ACI-AA models are of the pull-through type and utilize two large propeller fans. Suction gas-cooled compressors are used.

American Coils' second new model, the ACI-AR, is intended for use where remote location of the chiller's air-cooled condenser is desired. Connection of the chiller and a remote condenser takes only a short time according to the company. It consists simply of running a refrigerant line from the unit's compressor discharge valve to a remote air-cooled condenser and then back to the receiving tank.

All ACI-AR units are equipped with refrigerant shut-off valves to facilitate installation. The receivers are of the horizontal type and are oversized to allow them to handle sufficient Refrigerant-12 for even a very long refrigerant pipe run.

THE ACI HEAT PUMP SELF-CONTAINED

All ACI-H Comfortaire heat pumps, 3 tons through 15 tons, are manufactured with heating-cooling section and blowers in one cabinet. All units are equipped with duct flange connection for easily installing ducts for air distribution. The 3 and 5-ton models have one top duct flange, there are two duct flange connections on the 7½, 10, and 15-ton models.

If air distribution is to be accomplished through a front discharge grille, the plenum is installed on top of the heating-cooling and blower section.

PLENUM ROOM ADVISABLE

One conventional method of installing the heat pump, point out company engineers, is to construct an inexpensive plenum room. This room should be large enough to accommodate the heat pump and to allow room around the unit for servicing.

The ceiling of the plenum room may be lowered to fit above the unit and actually form a discharge plenum from which duct runs may be used to the areas to be conditioned. The return air must be run to the plenum room, but it is not necessary to run the ducts to the unit itself. This allows the lower panels to be moved for servicing and cleaning of filters without loosening return air ducts.

The plenum room should be located as close as feasible to the year-round conditioned areas to avoid long and unbalanced duct runs. The areas

(Concluded on next page)

Install Fairbanks-Morse Westco peripheral pumps for peak efficiency.

These pumps deliver approximately the same capacity when discharging against high pressure or low pressure—and all at 1750 rpm.! Multi-vaned impeller gives multi-stage performance from a single-stage pump. Ideal as integral parts of machines, units or systems—for circulating hot water, ice water or brine—or for clear water, sump, solvents or chemical fluids, feeding filters or boilers, or for booster service. Capacities to 200 gpm., heads to 600 feet.

See your F-M Pump Dealer or write Fairbanks, Morse & Co., Dept. ACR-4-22, 600 South Michigan Ave., Chicago 5, Illinois.

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with ALLEN-BRADLEY
TROUBLE-FREE SOLENOID STARTERS

This typical Allen-Bradley control panel for air conditioning and refrigeration has a Bulletin 709 solenoid starter . . . long a favorite for its trouble-free operation.

This panel also has an Allen-Bradley Bulletin 837 adjustable thermostat, a Bulletin 836 high pressure cutout, and a Bulletin 600 manual starter in a single enclosure.

Write for Bulletin 836-837.

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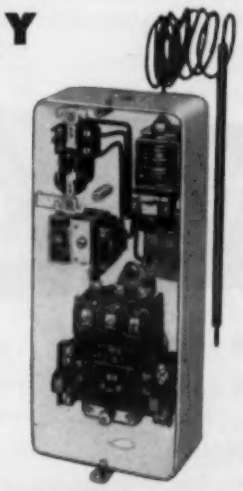

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SOLENOID MOTOR CONTROL
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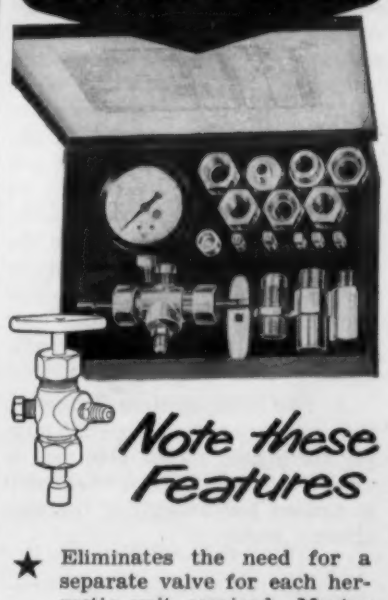
NOW...
SERVICE ALL TYPES OF HERMETIC UNITS
with One Valve!
THE NEW KEROTEST HERMETIC SERVICE KIT



Note these Features

★ Eliminates the need for a separate valve for each hermetic unit serviced. Master valve is furnished with adaptors and stem extensions to service specific units.

★ Stainless steel stem provides long service life—*at no added cost.*

★ Available with or without compound gauge in large heavy gauge steel box.

★ Many other time and cost saving features.

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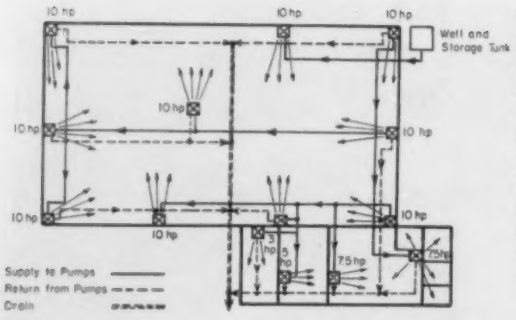
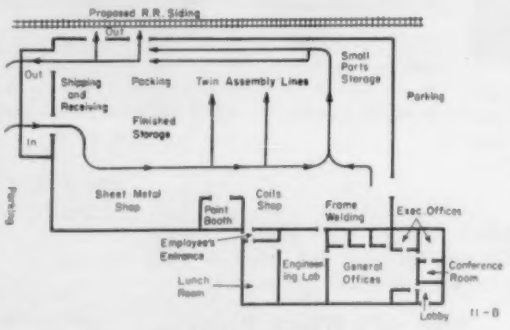


SCHEMATIC of heat pump placement and piping. Horsepower and air flow pattern of conditioned air are indicated. Solid lines represent copper pipes connecting heat pumps to water supply; dashed line shows water return pipes; double-dashed line indicates tile drain carrying water away from the building.



RAW MATERIALS enter at left in this production flow diagram. They are then formed into components in sheet metal, coil, and frame welding shops; then routed to final assembly lines. Sheet metal panels are spray painted and lined with insulating material on way to assembly lines. Concrete shipping dock at left provides three tailgate platforms. Finished units may leave either through overhead doors at far left or through overhead doors adjacent to proposed freight siding.

Heat Pumps Condition Plant--

(Concluded from preceding page)

will keep a closer temperature comparison also. If an ultra quiet operation is desirable, plenum room should be lined with acoustically treated material.

WELL WATER RECOMMENDED

A well is recommended for the water supply for a water-to-air heat pump, according to American Coils Co. officials. The well should have a sufficient flow to supply ample water to the heat pump at all times. Actually the unit does not absorb water, it merely takes heat from the water on the heating cycle or adds heat to the water on the cooling cycle. All water may be re-deposited and thus does not affect the water table of the area.

On the heating cycle the manufacturer recommended that approximately 3 gals. of water per horsepower per minute be pumped through the condenser-chiller. For the cooling cycle the water through the condenser-chiller may be throttled to approximately 1½ g.p.m. per horsepower per minute for efficient operation.

A two well system is called the least expensive water supply for a heat pump. One well is drilled to supply, another well is drilled for accepting the discharge water.

The wells should be 20 to 30 ft. apart so the water may filter from one well to the other and pick up heat and cold depending on which ever cycle the unit is operating. Good practice is to have the discharge well larger than the supply well.

The standard condenser-chiller is built of copper and is silver soldered. An analysis of the available water supply should be made to determine that no chemicals or solids exist in the water supply which would corrode or cause electrolytic action or otherwise be harmful and cause wearing with the condenser-chiller.

All American Coils Co. heat pumps are equipped with a water failure switch. This switch operates on water pressure from the water feed line. The pump or solenoid valve in the feed line is energized from the pump relay which is operated by thermostats. When the pump or solenoid start to operate, water is allowed to flow through the unit. The pressure of the water flowing through the unit activates the water pressure switch allowing the unit's compressor to start.

American Coils has cautioned prospective users of its water-to-air heat pumps that in some instances there may not be sufficient water available in the area.

Text of Proposed U. S. Standard for Inside Latch on Home Refrigerators

STANDARD FOR DEVICES TO PERMIT THE OPENING OF HOUSEHOLD REFRIGERATOR DOOR FORM THE INSIDE
(draft for comment)

I. Authority

PUBLIC LAW 930—84th Congress
Chapter 890—2nd Session
H.R. 11969
AN ACT

To require certain safety devices on household refrigerators shipped in interstate commerce.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any person to introduce or deliver for introduction into interstate commerce any household refrigerator manufactured on or after the date this section takes effect unless it is equipped with a device, enabling the door thereof to be opened from the inside, which conforms with standards prescribed pursuant to section 3.

Sec. 2. Any person who violates the first section of this Act shall be guilty of a misdemeanor and shall, upon conviction thereof, be subject to imprisonment for not more than one year, or a fine of not more than $1,000, or both.

Sec. 3. The Secretary of Commerce shall prescribe and publish in the Federal Register commercial standards for devices which, when used in or on household refrigerators, will enable the doors thereof to be opened easily from the inside; and the standards first established under this section shall be so prescribed and published not later than one year after the date of the enactment of this Act.

Sec. 4. As used in this Act, the term "interstate commerce" includes commerce between one State, Territory, possession, the District of Columbia, or the Commonwealth of Puerto Rico and another State, Territory, possession, the District of Columbia, or the Commonwealth of Puerto Rico.

Sec. 5. This Act shall take effect on the date of its enactment, except that the first section of this Act shall take effect one year and 90 days after the date of publication of commercial standards first established under section 3 of this Act. In the event of a change in said commercial standards first established, a like period shall be allowed for compliance with said change in commercial standards.

Approved Aug. 2, 1956.

II. Definitions

As used in this standard, unless the context specifically states otherwise:

1. The term **Act** means Public Law 930, 84th Congress, 2nd Session, H.R. 11969.

2. The term **device** means the mechanism or the means provided for enabling the doors of **household refrigerators** to be **opened** from the inside.

3. The term **effective date** means the date under the provisions of the **Act** after which all **household refrigerators** manufactured and introduced or delivered for introduction into the interstate commerce must comply with this standard.

4. The term **household refrigerator** means a cabinet or any part of a cabinet designed for the storage of food at temperatures above 32° F., having a source of refrigeration and intended for household use.

5. The term **opened** as applied to a refrigerator door means to effect release of the latching mechanism so that a trapped child would have to apply little or no further effort in order to escape.

6. The term **shelving** means any shelf, basket, drawer, or baffle which can be readily removed from the refrigerator without the use of tools.

III. Scope and Application

This standard shall apply to **devices** furnished with **household refrigerators** manufactured and introduced or delivered for introduction into interstate commerce after the **effective date** which enable such refrigerators to be **opened** from the inside.

The requirements of this standard shall apply to **household refrigerators** in their normal operating position only.

The releasing feature(s) of the **device** shall be accessible to all spaces, bounded by interior walls or **shelving,** which are directly accessible when the exterior hinged door(s) is (are) **opened,** and which in addition have a minimum dimension of 8 in. or more and a volume of 2 cu. ft. or more, existing either with all **shelving** in place or as the result of the removal or the rearrangement of any or all of the **shelving.**

IV. General Requirements

Household refrigerators shall . be equipped with a **device** enabling the doors thereof to be **opened** easily from inside, either by the application of an outwardly directed force to the inside of the door, or by the rotation of a knob similar to a conventional doorknob.

V. Detailed Requirements

1. **Releasing Forces.**

As determined by the tests called for in Sec. VI, the **device** shall permit the refrigerator door to be **opened**

(a) on the application of a force equivalent to one which, if directed perpendicularly to the plane of the door and applied anywhere along the latch edge of the inside of the closed door, shall not exceed 15 lbs., or

(b) on the application of clockwise or counterclockwise turning moment of not more than 5 in.-lb. to a knob on the door through an angle of rotation of 45° (± 15°) in either direction.

2. **Description and Location of Knob.**

The knob shall resemble a conventional doorknob in shape and size, and shall be mounted near the latch side of the door extending into the cabinet at least ¼ in. beyond any inner door surface within a six-inch radius of the knob center.

The knob shall be mounted in such a manner that there is a minimum of ¾ in. clearance between the inner periphery of the knob and adjacent inner door surfaces.

3. **Wear.**

The **device** shall comply with the requirements of Sec. V.1 of this standard after 300,000 cycles of operation of the door as determined by the tests called for in Sec. VI.

4. **Protection Against Adverse Effects from Spoilage, Cleaning, Defrosting, and Condensation.**

Devices shall be designed so that spillage of foods or beverages, cleaning or defrosting in accordance with manufacturer's recommendations, or normal condensation will not so adversely affect the operation of the **device** as to result in its failure to meet the requirements of Sec. V.1, as determined by the tests called for in Sec. VI.

5. **Power Supply.**

The **device** shall operate in accordance with the requirements of this standard with the electric, gas, or other fuel supply either on or off.

VI. Tests

It is the intent of this standard that where tests are not specified, the general and detailed requirements shall be checked by inspection, simple measurement, and by consideration of pertinent standard commercial practices. Compliance with requirements V.1, V.3, and V.4 shall be checked with the aid of the following tests:

1. **Test for Releasing Force on Door.**

The force measurements shall be made by means of a force gage with a calibrated accuracy within ± 0.3 lb. when measuring a force of 15 lbs.

The dial of the gage shall be graduated with finest divisions not exceeding 0.2 lb., and the full-scale range shall not exceed 30 lbs.

Measurements shall be made at three points on the door near the inside latch edge—one point near the top of the interior space created by removal of all **shelving,** one point near the bottom, and one point midway between these two points. The requirements of V.1 (a) of this standard shall be satisfied.

2. **Test for Knob Torque.**

The measurement of the turning moment required to operate the knob release shall be made with a torque gage adapted for attachment to the knob or knob shaft.

The gage shall have a calibrated accuracy within ± 0.10 in.-lb. when measuring a moment of 5 in.-lb.

The finest graduations on the dial of the gage shall correspond to a moment increment not greater than 0.10 in.-lb., and the full-scale range shall not exceed 10 in.-lb. in each direction from the null reading.

The turning moment shall be applied so as to rotate the knob the full amount required for release, in both a clockwise and a counterclockwise direction.

The angle of rotation required for release shall be checked by means of an angle gage adapted to measure the angle of rotation about the longitudinal axis of the knob shaft.

The gage shall have a calibrated accuracy within ± 1° at an angle of 45°, and the finest divisions shall not exceed 1°. The requirements of V.1(b) of this standard shall be satisfied.

3. **Simulated Use Test.**

Tests shall be conducted on the completely assembled refrigerator in its normal operating position to determine that the release **device** complies with the requirements of Sec. V during and after 300,000 cycles of door operation, and following exposure to spillage of foods and beverages, to cleaning and defrosting in accordance with manufacturer's recommendations, and to condensation.

The equipment provided for operating the door shall open the door sufficiently on each cycle to assure a complete cycle of operation for the latch mechanism.

VII. Provision for Changes in the Standard

Section 5 of the **Act** provides for the possibility of changes in the commercial standard first established pursuant to Section 3 of the **Act** and allows a period of one year and ninety days for compliance with such changes after they are published.

Any person wishing to propose a change in this commercial standard shall submit to the Director, National Bureau of Standards, United States Department of Commerce, Washington 25, D. C., the proposed change.

Before a change is recommended, the Director, National Bureau of Standards, shall secure advice and consultation from public or private sources including particularly the **household refrigerator** manufacturing industry and the Children's Bureau of the Department of Health, Education, and Welfare, and shall then forward such proposal with his recommendation to the Secretary of Commerce for such action as the Secretary deems appropriate.

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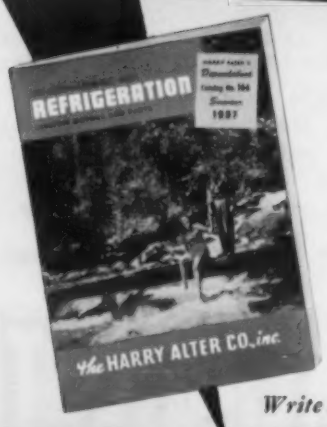
Place your ad today!

REFRIGERATION is our SPECIALTY
Air Conditioning and Electric Motors, Too!



OVER 10,000 ITEMS . . . the world's most comprehensive listing of parts and supplies . . . appear in the Harry Alter DEPENDABOOK No. 166 Summer, 1957 complete with illustrations, descriptions, prices and other useful information.

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Write on your letterhead for the DEPENDABOOK

PARTS and Supplies

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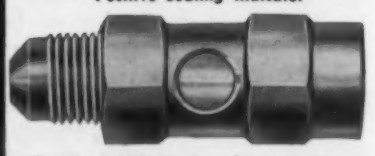
or visit branches 134 Lafayette Street, New York 13, N. Y. · 122 Parkhouse Street, Dallas 7, Texas · Bldg. B, Unit 8, 690 Stewart Ave., S.W., Atlanta 10, Ga.

MASS PRODUCTION COSTS TOO HIGH?

Here's the ideal low-cost indicator for those hard-to-get-at places.

The new Allin "237" has all the proved Liquid Eye features plus:
- smaller—more compact—dependable. (about 1/3'd smaller in the 3/8" male to female size than any previous unit).
- complete self-contained economy unit.
- new simplified design.
- available with 2 or 3 viewing ports.

NEW "237" LIQUID EYE
Positive Sealing Indicator



(Illustrated 3/8" M. FL. x 3/8" FE. FL.)

Custom units can be made to your exact specifications. Consult Allin engineers now.

Write today for full information and catalog covering complete Allin line.

Allin
ALLIN MANUFACTURING CO.
410 N. Hermitage Ave. • Chicago 22, Illinois
Over 1,000,000 Liquid Eyes Sold to Date!

For more information about products advertised on this page use Information Center, page 28.

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Fort Huachuca Procurement Office, U. S. Army, Signal Supply Agency, P. O. Box 748, Fort Huachuca, Ariz.

MODIFICATIONS, ADDITIONS, AND INSTALLATION OF HEATING SYSTEM for engineer shops, to include the following: Excavation for ramps, steps, and utilities systems; miscellaneous carpentry, gypsum wallboard, cement asbestos siding, concrete, plumbing, electrical, roofing, and painting work. heating system shall include steam boiler with an output rating of 3,340,000 B.t.u.h. at 5,000-ft. elevation. Automatically controlled for operation and safety; furnish and install condensate pump and tank; furnish and install all valves, piping, and wiring for complete installation—Job—IFB SC-36-039-57-466—Bid Opening 1 May 57.

U. S. Army Engineer District, St. Paul, 1217, U. S. Post Office and Custom House, St. Paul, Minn.

CONSTRUCTION OF ALTERATIONS AND ADDITIONS TO CENTRAL HEATING PLANT at the Duluth AFB, Duluth, Minn. Bid items include: Boiler plant building expansion 18 ft. x 51 ft. and 20 ft. x 30 ft. of concrete footings and block walls, steel windows, steel web roof joints, precast concrete roof slabs and pitch and gravel built-up roofing. Coal handling facilities, as handling facilities, two new boilers and mechanical equipment—Job—IFB ENG-21-018-57-15B—Bid sets available about 10 April—Bid Opening about 8 May 57.

Purchasing & Contracting Office, Ft. Hood, Texas.

RELOCATE RETURN AIR DUCTS IN BARRACKS—Job—IFB AIV-41-093-57-121—Bid Opening 27 April 57.
INSTALL GOVERNMENT FURNISHED ELECTRIC DRINKING WATER COOLERS in barracks.—Job—IFB AIV-41-093-57-133—Bid Opening 27 April 57.
REPLACE STEAM UNIT HEATERS WITH GAS FIRED HEATERS—Job—IFB AIV-41-093-57-127—Bid Opening 27 April 57.
AIR CONDITIONING ADMINISTRATIVE BUILDING—Job—IFB AIV-41-093-57-137—Bid Opening 26 April 57.
REPLACE WARM AIR FURNACES in B.O.Q. Buildings—Job—IFB AIV-41-093-57-137—Bid Opening 26 April 57.
REPLACE STEAM HEATERS WITH DIRECT GAS FIRED HEATERS in shops—Job—IFB AIV-41-093-57-141—Bid Opening 27 April 57.
INSTALL ELECTRIC DRINKING FOUNTAINS IN MESS HALLS—Job—IFB AIV-41-093-57-140—Bid Opening 27 April 57.

Lexington Signal Depot, Lexington, Ky.

AIR CONDITIONER TWENTY-FIVE TON—two ea.—IFB nr SC-15-010-57-82B—Bid Opening 25 April 57.

NAVY

District Public Works Office, Fifth Naval District, U. S. Naval Base, Norfolk, Va.

HEATING PLANT EXPANSION at Naval Air Station, Oceana, Va. Deposit not required for plans and specs—Job—IFB NBY 10650—Bid Opening 30 April 57.

District Public Works Office, Sixth Naval District, Naval Base, Charleston, S. C.

HEATING AND STEAM DISTRIBUTION FACILITIES, Marine Corps Recruit Depot, Parris Island, S. C.—Job—IFB 6498/56—Bid Opening 9 May 57.

Supply Officer, Philadelphia Naval Shipyard, Philadelphia, Pa.

REPAIR THE 80-TON AIR CONDITIONING UNIT in Optical Shop Bldg. 26 U. S. Naval Shipyard, Philadelphia, Pa.—Job—IFB 151-21410-57B—Bid Opening 1 May 57.

District Public Works Office, Fifth Naval District, U. S. Naval Base, Norfolk, Va.

REPLACEMENT OF BOILER AND EXTENSION OF HOT WATER HEATING LINES at Naval Mine Depot, Yorktown, Va.—Job—IFB NBY 7698—Bid Opening 25 April 57.
REPLACEMENT OF REFRIGERATORS BOQ BLDG. Nr 28 at Armed Forces Staff College, Norfolk, Va.—Job—IFB NBY 10669—Bid Opening 25 April 57.
CONVERSION OF HEATING PLANT Nr 2 at Naval Air Facility, Elizabeth City, N. C.—Job—IFB NBY 7730—Bid Opening 26 April 57.

AIR FORCE

Air Force Contracting Office, 3800th Air Base Wing, Maxwell Air Force Base, Ala.

AIR CONDITIONING BUILDING 850, Gunter Air Force Base, Ala.—Job—IFB 01-600-57-131—Bid Opening 23 April 57.
AIR CONDITIONING BUILDING 844, Maxwell Air Force Base, Ala.—Job—IFB 01-600-57-132—Bid Opening 23 April 57

Purchasing and Contracting Office, Mitchel Air Force Base, N. Y.

AIR CONDITIONING AND REHABILITATION of T-138, T-139, T-140, T-141, T-152, and T-153, Mitchel Air Force Base, N. Y.—Job—IFB 30-601-57-92B—Bid Opening 22 April 57.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 5, 575 U. S. Courthouse, 219 S. Clark St., Chicago, Ill.

REFRIGERATED DRINKING WATER UNIT, Plumbing Alterations and Changes, U.S.P.O., Courthouse and Custom House, Louisville, Ky.—Job—IFB D&C 334—Bid Opening 4-23-57.

General Services Administration, Region 7, Business Service Center, 1114 Commerce, Dallas, Texas.

REFRIGERATORS, MECHANICAL, HOUSEHOLD, ELECTRIC, Type I, Domestic, Size No. 8, Fed. Spec AA-R-211C, Amd. 1—100 ea.—IFB DA-10959—Bid Opening 4-30-57.

General Services Administration, Region 2, Business Service Center, 250 Hudson St., New York 13, N. Y.

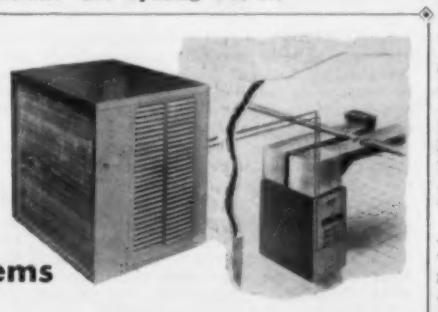
RENTAL OF WATER COOLERS at various locations throughout the states of Delaware, N. J., N. Y. & Pa.—Indefinite—IFB NY-2SG-70476—Bid Opening 5/7/57.

General Services Administration, Region 4, Business Service Center, 50 Seventh St., N.E., Atlanta 23, Ga.

AIR CONDITIONING JURY ROOM, Jackson, Miss., Post Office and Court House—Job—IFB CR4-1627—Bid Opening 4-30-57.
AIR CONDITIONING JURY ROOM, Memphis, Tenn., Post Office, Court House and Custom House—Job—IFB CR4-1637—Bid Opening 4-30-57.

ARMSTRONG'S FLEXIBLE "CUSTOM"

solves tough installation problems



Armstrong's air-cooled "Custom" summer air conditioner can be installed as a split system, or as a compact one-piece "FRIGI-PAK" system. Condenser may be placed outside in yard, breezeway, garage, or on a roof. Or it can be installed inside . . . in an attic or crawl space.

Evaporator coil when used as a split system can be located above, beside, behind, or under any good warm air furnace. Ideal for air conditioning any home . . . any commercial establishment . . . anywhere.

WITH THESE EXCLUSIVE ARMSTRONG FEATURES

- Condenser has large face area; copper tubes combined with aluminum fins.
- Axial-flow fan is 60% larger than many others used on this type equipment — a full 22".
- Tecumseh compressor is vibration-free. Operates cooly, quietly.
- Liquid receiver and filter-dryer sized to carry reserve supply of refrigerant under variable loads.
- High and low pressure cut-off built in.

Write TODAY for FREE information about Armstrong's complete line of air conditioning equipment.

ARMSTRONG FURNACE COMPANY
Dept. AC, COLUMBUS 8, OHIO
DIVISION OF NATIONAL UNION ELECTRIC CORPORATION

Men on the Move . . .

Emerson Electric Mfg. Co.—GILBERT F. CRAIG has been elected vice president-industrial relations. He formerly was assistant vice president-industrial relations.

Home Products Div., Rheem Mfg. Co.—ROBERT J. PIERSON has been promoted to the newly-created position of plumbing sales manager. He was previously national advertising and sales promotion manager for the division.

CLEO A. O'DONNELL, who formerly held the same post in the central region sales department, will succeed Pierson as national advertising and sales promotion chief.

Trane Co.—JOHN P. RODGERS, a sales engineer in the Clarksburg, W. Va., office, has been named manager of a new sales office in Akron, Ohio.

Kelvinator Div., American Motors Corp.—DON W. HENSLEY has been named manager of the Kansas City, Mo. branch of Refrigeration Discount Corp., sales financing subsidiary of Kelvinator. He was Dallas field representative and succeeds P. A. TUOHEY who resigned.

F. H. Langsenkamp Co. (Indianapolis)—FRED C. GREER, JR. was promoted to vice president-sales for this canning and food processing equipment firm.

PAUL E. WILLIAMS was upped to vice president-purchasing.

KEITH M. CLARKE was appointed treasurer.

Howe Equipment of Canada, Ltd.—VICTOR L. SAVAGE has been appointed president of this air conditioning, heating, and ventilating contracting firm and Carrier Corp. representative.

Eaton Mfg. Co.—Retirement of HOWARD J. McGINN as board chairman was recently announced.

JOHN C. VIRDEN, president since Jan. 1, was elected chairman to succeed McGinn. He will occupy the dual posts of president and board chairman.

Kenco Pump Div. (Lorain, Ohio)—Appointment of JAMES G. HUIETT as sales manager has been announced. He was formerly service manager.

Westinghouse Electric Corp.—Formation of two new headquarters advertising departments to take the place of the former industrial advertising department has been announced.

W. T. RUSH, formerly sales promotion manager for the northeastern region, has been named manager of the new general products advertising department. C. A. BOYLES, a division manager of distributor and specialty advertising, will be assistant manager.

R. F. GOMBER and T. J. FARRAHY, previously manager and assistant manager of industrial advertising, will occupy the same posts in the apparatus and defense advertising.

JOHN F. MOYER has been named manager of dealer promotions in the major appliance advertising department. Formerly sales promotion manager for Buffalo Electric Co., Inc., he will devote full time to creating and developing new promotion plans and ideas.

CARROLL V. ROSEBERRY, previously commercial atomic power activities manager, has been elected vice president and appointed manager of the company's midwestern region with headquarters in Chicago. He succeeds A. M. FISHER, now in ill health. Roseberry will be responsible for apparatus activities in all or parts of Indiana, Illinois, Iowa, Minnesota, Montana, Nebraska, Wisconsin, and North and South Dakota.

Iron Fireman Mfg. Co.—HYTER C. HALL, JR. has been named district sales manager and will direct sales of domestic, commercial, and industrial heating equipment in the Philadelphia, Baltimore, and Washington, D. C. areas. He has had many years' experience in the heating industry.

Dunham-Bush, Inc.—Transfer of DEAN KEUCH, sales engineer, to the Cleveland area has been disclosed. He joined the firm in 1955.

Room Unit Plan--

(Concluded from Page 1, Col. 4)

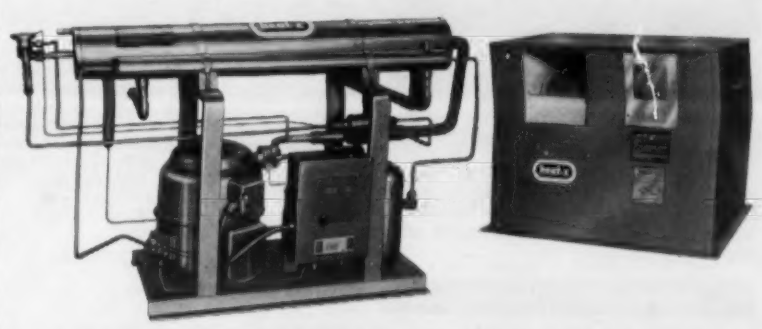
if a dispute arose over the validity of the published rating, the matter might be placed in the hands of some independent testing laboratory. (This plan was reported in AIR CONDITIONING & REFRIGERATION NEWS a couple of months ago).

In reference to a published report that a motion picture film for the purpose of educating the consumer on the selection of a room air conditioner was in production, with ARI standing the cost, it was stated that a script for such a film has been approved, but that no definite plans or budget have been provided as yet for actually making the film.

The Association of Better Business Bureaus came out strongly for having all advertising references to capacities of room air conditioners be in B.t.u., and adopted a resolution which declared:

"This conference asserts its belief that whenever reference is made in advertising to horsepower, amps, or volts of room air conditioners, the B.t.u. capacity, in accordance with ARI Standard 110-56, should be affirmatively and prominently disclosed, and be it further resolved that all manufacturers be urged to insert such reference to B.t.u. capacity in all advertising as soon as possible and in no event later than the 1958 seasons."

BOOM FORECAST in RESIDENTIAL AIR CONDITIONING



Assure YOUR Profit Share with these NEW heat-x Units

Completely packaged water chillers . . . in 2, 3 and 5 HP models . . . designed for easy, speedy installation that *builds profits.* Available in water-cooled models ('RPC') and air-cooled models ('ARPC'), these new Heat-X units were developed *specifically* for residential and light commercial air conditioning systems.

High efficiency patented Inner-Fin® construction of chillers, superheaters and condensers makes these the most compact units on the market. All water passages are of non-ferrous construction, eliminating corrosion problems.

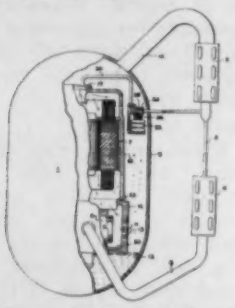
Don't be left behind in the coming residential air conditioning boom. Write today for complete data on 'RPC' and 'ARPC' units.

HEAT-X, Inc.
A Subsidiary of Dunham-Bush, Inc.
BREWSTER • NEW YORK

PATENTS

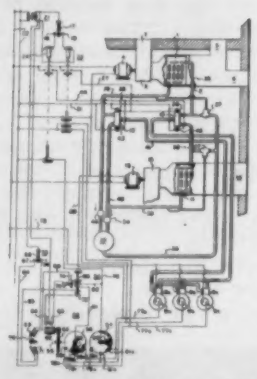
Week of Jan. 8

2,776,542. MOTOR COOLING MEANS FOR HERMETICALLY SEALED REFRIGERANT COMPRESSOR UNIT. Kenneth K. Cooper, North Caldwell, N. J., assignor to General Electric Co., a corporation of New York. Application July 7, 1955, Serial No. 520,600. 11 Claims. (Cl. 62—3.)



1. A hermetically sealed refrigerant compressor unit comprising a sealed casing, compressor means disposed within said casing including means for withdrawing low pressure refrigerant from a refrigerating system and for discharging compressed refrigerant into said casing, a motor for driving said compressor means, and means including a thermally operated valve for passing condensed refrigerant in heat exchange relationship with said motor, said valve controlling the amount of condensed refrigerant passed through said motor in accordance with the temperature of the compressed refrigerant in said casing.

2,776,543. STEP-MODULATED CONTROL SYSTEM FOR AIR CONDITIONING APPARATUS. Francis R. Ellenberger, North Caldwell, N. J., assignor to General Electric Co., a corporation of New York. Application May 10, 1954, Serial No. 428,708. 9 Claims. (Cl. 62—4.)

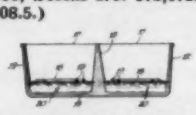


1. An electrical control system for controlling the operation of a heat pump having variable output compressor means in accordance with the demand on said pump, said control system comprising a first circuit for operating said compressor means at a base output level corresponding substantially to the base load demand on said pump, a second circuit including thermal switch means responsive to an increase in the demand on said pump for immediately operating said compressor means at an increased output level and continuing the operation thereof at said increased level until said increased demand is met, and switch means in said first circuit controlled by said thermal switch means for effecting continued operation of said compressor means at said increased output level under control of said first circuit after a predetermined period of operation of said compressor means at said increased output level under the control of said second circuit.

2,776,545. POWER UNIT FOR FREEZING DEVICE. Samuel B. Miller and Murray S. Millhouse, Dayton, Ohio, assignors to General Motors Corp., Detroit, Mich., a corporation og Delaware. Application July 28, 1954, Serial No. 446,304. 5 Claims. (Cl. 62—108.5.)

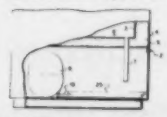
1. In a freezing device of the type including a tray, a grid removably disposed in the tray having a plurality of relatively movable partitions dividing the interior thereof into compartments in which water is to be frozen into ice blocks and a unitary ice motor carried by said grid having reaction members forced to move in opposite directions at a predetermined temperature for reacting between said grid partitions to move the same with respect to one another and loosen ice blocks from said compartments, one of the reaction members of said ice motor having an open end and containing a freezing liquid, a diaphragm disposed between the reaction members of said motor clamped to and extending across the open end of said one reaction member for sealing said liquid therein out of contact with the other of said reaction members, said other of said reaction members of said motor engaging said diaphragm, and said diaphragm being flexed in response to freezing and expanding of said liquid to shift said other reaction member in a direction away from said one reaction member for causing said movement of said grid partitions.

2,776,546. ICE CUBE TRAY. Adna R. Clark and Eric H. Schwenker, Evansville, Ind., assignors, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware. Application Aug. 6, 1953, Serial No. 372,672. 1 Claim. (Cl. 62—108.5.)



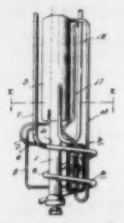
An article of manufacture comprising a container having front, back, and two side walls, a flat bottom and a plurality of partitions integrally formed therein, said partitions being disposed to cooperate with the walls and bottom of said container to provide a plurality of individual compartments adapted to receive a liquid therein, said front, back and side walls and said partitions all being formed with the lower portions thicker than the upper portions thereof and being disposed so that all the inner surfaces of the walls of each compartment are inclined outwardly, said container and partitions being fashioned of rigid material and as a unitary structure, a plurality of resilient false bottoms having a plurality of ribs formed on upper surfaces of each thereof, said resilient false bottoms being mounted one each in said compartments and being secured to the walls of their respective compartments in a sealed relationship therewith by having each false bottom extending on all of its four sides into an engaging peripheral, inwardly open groove in each of the four walls of each ice cube cavity, said false bottoms being disposed so as to divide each of said compartments into an upper compartment adapted for directly receiving water for freezing therein and a lower sealed compartment, an eutectic solution disposed to completely fill each of said lower compartments below said resilient false bottoms, said eutectic solution having a freezing point lower than the freezing point of any water disposed within said upper compartments, whereby ice cubes are formed in said upper compartments and said eutectic solution is thereafter frozen to bow said resilient false bottoms upwardly to loosen and raise the ice cubes from said upper compartments when said container and any water disposed therein is subjected to a temperature below the freezing temperature of said eutectic solution.

2,776,547. OIL COOLING ARRANGEMENT IN REFRIGERATOR SYSTEM. Ralph E. King and Earl F. Hubacker, Erie, Pa., assignors to General Electric Co., a corporation of New York. Application Dec. 9, 1953, Serial No. 397,127. 4 Claims. (Cl. 62—116.)



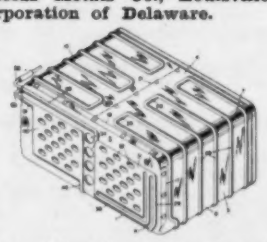
1. In combination with a refrigerator cabinet, a hermetically sealed compressor including a casing, a sump disposed in the lower portion of said casing, means to divide said oil sump into two parts, the first part of said sump being an oil supply reservoir, the second part of said sump collecting oil, an oil tube connecting said parts of said sump to permit oil to flow by gravity from said second part to said first part, said oil tube being disposed outside said casing, a container disposed above said tube in heat exchange relation therewith, and means to supply condensate from the interior of said cabinet to said container, said condensate evaporating when said oil passes through said tube to cool said oil.

2,776,548. VERTICAL GENERATORS FOR ABSORPTION REFRIGERATION UNITS. Roberto Martiri, Buenos Aires, Argentina. Application Jan. 26, 1954, Serial No. 406,317. 1 Claim. (Cl. 62—119.5.)



A vertical generator for an absorption refrigerator comprising a substantially vertical heater element, a boiler mounted in thermal contact with said heater, a liquid elevator including an auxiliary chamber mounted adjacent the lower end of said boiler, a liquid heat exchanger positioned above the bottom of said auxiliary chamber and means to supply strong liquor from said liquid heat exchanger to said auxiliary chamber, said boiler having a single gas discharge port, a tube connected to said gas discharge port and extending downwardly and terminating within said auxiliary chamber in an upwardly directed nozzle, said upwardly directed nozzle being centrally positioned within a downwardly directed funnel mounted within said auxiliary chamber, the side walls of said funnel being apertured, said funnel narrowing into a substantially vertical tube which constitutes the sole exit from said auxiliary chamber, said substantially vertical tube communicating at a point above the level of the liquid within said boiler with a conduit and being curved so that a portion thereof is in thermal contact with said heater element, said conduit communicating at its lower end with said boiler.

2,776,549. REFRIGERATION COMPARTMENT. Richard Edward Gerhardt, Clarksville, Ind., assignor to Reynolds Metals Co., Louisville, Ky., a corporation of Delaware.

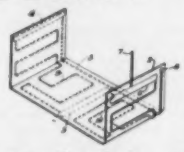


1. A refrigerator compartment comprising: a body comprising a pair of integrally bonded flat metal sheets providing certain unbonded protuberant areas therebetween as hereinafter defined; said bonded structure being bent to form a refrigeration tunnel compartment having an integral vertical end wall joined to the tunnel portion through a bend; said tunnel portion wall having unbonded protuberant areas forming an evaporator chamber for refrigerant; and said end wall having an unbonded protuberant area forming a reservoir for liquid refrigerant; and an unbonded protuberant area forming a first passageway connected adjacent the bottom of said reservoir and extending upwardly along said wall to a point adjacent the top of said reservoir, then around the bend joining the end wall to said tunnel portion, to connect integrally to said evaporator chamber.

2,776,550. CAPILLARY ADAPTOR. Earl H. Magester, Erie, Pa., assignor to General Electric Co., a corporation of New York.

1. In a refrigerating system, a capillary tube, an evaporator including continuous tubing of larger diameter than said capillary tube, an adaptor for connecting said capillary tube and said evaporator tubing, said adaptor comprising an elongated tapering tube, said capillary tube extending through said adaptor and projecting a predetermined distance beyond the small end of said adaptor, said small end of said adaptor being brazed to said capillary tube said adaptor being assembled in said evaporator tubing with the small end of said adaptor and the projecting end of said capillary tube extending into said evaporator tubing, the larger end of said adaptor being brazed to the end of said evaporator tubing adjacent the point of maximum taper diameter, said larger end of said adaptor extending a substantial distance beyond the end of said evaporator tubing to limit the bending movement of said capillary tube.

2,776,551. REFRIGERATION EVAPORATOR. Harley Lichtenberger, Evansville, Ind., assignor, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware.

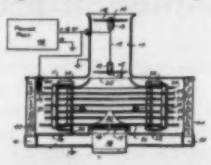


2. An evaporator for a refrigerator comprising a horizontally disposed longitudinal base portion, a pair of wall portions, one of said wall portions joined at each end of said base portion, a reservoir formed on the underside of said base portion longitudinally across the center thereof and depending from said base portion, a length of serpentine tubing formed on said base portion on one side of said reservoir and said wall portion joined to said base portion on one side of said reservoir, one end of said length of serpentine tubing connected to said reservoir, a second length of serpentine tubing formed on said base portion on the other side of said reservoir and said wall portion joined to said base portion on said other side of said reservoir, one end of said second length of serpentine tubing connected to said reservoir, the other ends of said first and second lengths of serpentine tubing connectible in said refrigerator so that any liquid refrigerant present at said other ends of said first and second lengths of serpentine tubing will tend to flow into said reservoir, heater means in thermal cooperation with said reservoir and operable to produce heat so that when liquid refrigerant is disposed within said reservoir said means are operable to heat said liquid refrigerant to a hot gas which will simultaneously flow through said first and second lengths of serpentine tubing.

2,776,552. SHEATHED CAPILLARY INLET FOR REFRIGERATOR. Jesse B. Thomas, Louisville, Ky., assignor to Reynolds Metals Co., Louisville, Ky.

1. A refrigerator construction comprising: an evaporator plate formed in a refrigerator compartment, said plate having a passageway for refrigerant within the confines of said plate; a short tube permanently connected at one end to said plate by a fused joint, the interior of said tube communicating with said passageway; a T fitting attached at one end by a fused joint to the other end of said tube, and having the opposite end of the T fitting in alignment with said tube; and a capillary tube for supplying refrigerant to said passageway sheathed in a portion of said passageway, the passageway forming a clearance space between the outside wall of said capillary tube and said passageway, and said capillary tube extending from said passageway in said plate axially through said tube, through said fitting, and through said opposite end of the T; the joint of said capillary tube and said opposite end of the T being sealed by a fused joint; said opposite end of the T fitting being adapted for coupling to a tube of larger diameter than the capillary tube for supplying refrigerant to the capillary tube.

2,776,724. ELECTROSTATIC PRECIPITATORS. Fabio R. Goldschmied, Quincy, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania.



1. An electrostatic precipitator comprising a plurality of circular, spaced-apart, parallel collector plates, an electric motor having a shaft for rotating said plates, means for attaching an end one of said plates to said shaft, means for insulatedly supporting alternate of said plates from said one end plate, means supporting the others of said plates directly from said one end plate, all of said plates except said one end plate having central openings, an ionizer having an ionizer wire adjacent the opening in the other end plate and having a non-discharging ionizer electrode spaced from said wire, and electric connections for supplying high voltage to said wire and to said alternate plates.

(To Be Continued)

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POSITIONS WANTED

MARYLAND, WASHINGTON, D. C., and Virginia.—Aggressive manufacturer's representative. Engineering background and 10 years of field sales experience now calling on the heating, air conditioning and appliance trade desires to obtain and promote one additional merchandising line. Reply to BOX A5774, Air Conditioning & Refrigeration News.

EXPERIENCE FOR hire. Refrigeration and air conditioning service engineer, 46 years old, wants to make change. Will relocate anywhere. Eighteen years' experience. Now employed by one of the country's largest universities as foreman of refrigeration and air conditioning. Details on request. BOX A5776, Air Conditioning & Refrigeration News.

EXECUTIVE SALES engineer, Central Florida resident, 18 years' heating—refrigeration—air conditioning experience all phases residential to 200 tons. Manager Carrier distributor branch offices over 12 years. Trained sales engineers, supervised entire operation. Prefer remaining here. Will connect with established dealer-distributor or represent manufacturer. BOX A5778, Air Conditioning & Refrigeration News.

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MECHANICAL ENGINEER, 25-40, graduate—to develop and manage mechanical engineering department of firm of consulting engineers and architects (offices in the Upper Midwest and Southwest). Experience in heating, piping and air conditioning desirable. Paid vacations, holidays and sick leave. Group health and hospitalization insurance. Excellent opportunity to grow with the company. Salary open. Mail qualifications to SCOTT ENGINEERING COMPANY, P. O. Box 863, Watertown, South Dakota. Interviews will be arranged.

JOB OPENING available for packaged product application engineer. Field sales experience in packaged air conditioning desired. Outstanding chance for good immediate position with unusual growth potential. Send resume of background and experience to the Industrial Relations Department, WESTINGHOUSE ELECTRIC CORP., P. O. Box 510, Staunton, Virginia.

APPLICATION AND sales engineers, technical graduate or equivalent wanted with refrigeration experience. Age 25-32. Interesting work calling on contractors, wholesalers and air conditioning and refrigeration manufacturers in established territories. Starting salary based on experience plus commission after indoctrination. All replies will be kept confidential. Address reply to BOX A5777, Air Conditioning & Refrigeration News.

FIXTURE SALES position available with one of the leading Mid-west distributors. The man we are looking for must be alert, aggressive and have some knowledge of refrigerated fixtures and shelving. We offer unlimited opportunities to the right man. Write, giving personal details and background. BOX A5779, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

ATTENTION: OWNERS of Baker compressors and condensers. We carry complete stock of repair parts for all Baker ammonia and Freon compressors and condensers. Valves and ice plant equipment. CENTRAL ICE MACHINE COMPANY, 5014 South 24th Street, Omaha, Nebraska.

NATIONALLY-FAMOUS brand-new condensing units at sensationally low prices. ⅛ h.p. only $34.50. Other sizes up to ¾ h.p. at equally great savings. Also tremendous values in motor compressor domes. ¼ hp only $31.00 Complete selection of sizes up to 1½ h.p. All units fully guaranteed. Write for complete description and price list. MANN REFRIGERATION SUPPLY CO., 440 Lafayette Street, New York 3, N. Y. GRamercy 3-8000.

USED ROOM air conditioners, hermetically sealed, popular brands, large quantity. WM. A. SCHWARZ & SON, INC., 614 3rd Avenue, New York 16, New York.

BUSINESS OPPORTUNITIES

IF YOU yearn for a commercial refrigeration business in growing Southern California, this may be your opportunity. One of larger complete operations has grown to too large a load—need help. Have national line's cases, wood shop for walk-ins, shelving, complete service and installation department, also excellent used equipment business. Will sell half to a real worker, with option to take all. BOX A5780, Air Conditioning & Refrigeration News.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR, 2833 Lincoln Avenue, Chicago 13, Illinois.

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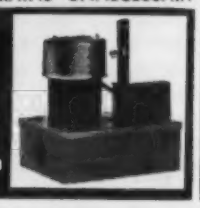

For more information about products advertised on this page use Information Center, page 28.

Mr. Heating Contractor:

Get a solid footing on big air conditioning sales and profits!

Air Conditioning & Refrigeration News Now Offers You Helpful New Air Conditioning Books

IT'S GOOD PRACTICE to know as much as possible about the business we're in, and to stay abreast of current developments in the field. For this reason, the NEWS strives to keep you posted on what's going on in the field of home comfort, and to let you know about all the new opportunities in air conditioning.

If you're planning more cooling, as well as heating jobs this year, you'll be on the lookout for pertinent information more than ever! Chances are you're looking for material on air conditioning to help increase your own perspective—and to give your staff a better background in the field.

The Editors of the NEWS now offer these information-packed books on air conditioning . . .

"AIR CONDITIONING THE HOME" is a comprehensive study on the year-around residential air conditioning industry. It is a book you will want to keep for reference; 9" x 12" in size, well printed and abundantly illustrated—a worthy addition to your library.

"THE KEY TO AIR CONDITIONING" is a series of three manuals (K-1, K-2, K-3) that explain in everyday language, problems in air conditioning layout and installation. These books will help you sell more units, and make better installations.

AIR CONDITIONING & REFRIGERATION

NEWS

The Newspaper of the Industry

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Air Conditioning the Home

HOW MANY WANT IT. Residential air conditioning is expected to hit a goal of nearly 2-million units installed by 1965. Read how market conditions are today—and will be tomorrow. Read many, many reasons why people buy air conditioning, each reason a selling point for you.

HOW TO SELL IT. You'll learn the best financing approach, and price levels of units for different types of residences. Charts show you how to estimate the cost for various types of residential construction.

HOW DOES IT WORK. You will find representative installation diagrams and operating characteristics of certain systems. Many of the pitfalls of year-around residential air conditioning work are spelled out. Examples are given on how to estimate heat gain and how to bring the customer into your confidence in making estimates.

FHA REQUIREMENTS. Here in easy-to-read layout is the text of Bulletin ME-12 for quick reference or study.

Only $1.00 per copy. Use coupon to order copies for each key member of your staff.

The Key to Air Conditioning

MANUAL NO. K-1

PROPERTIES OF AIR. Relationships between atmospheric pressure, gauge pressure and absolute pressure, temperature, specific heat.

HEAT. Flow, relation of dry-bulb, wet-bulb, and dewpoint temperatures.

HUMIDITY. Kinds, permissible relative humidities in winter, spraying required for relative humidities, tables, problems.

PSYCHROMETRIC CHART. Description, application, testing installation, dewpoint lines straight, relative humidity lines, problems.

VENTILATION. Vitiated air, mechanical means, natural means, various exposures, methods of calculation for proper amount of ventilation.

AIR REQUIREMENTS. Air motion, air requirement formulas, tables, graphs, and problems.

REFRIGERATION. Cooling and dehumidifying, proper evaporative cooling, principles of operation, design, refrigeration cycle, power consumption, selection, examples, and graphs.

FANS. Connections to motor, parts of blower fans, types, ordering, selection.

AIR DISTRIBUTION. Grilles, registers, ceiling diffusers, self-contained units, remote type units.

MANUAL NO. K-2

SHEET METAL DUCTS. Various elements of ductwork are explained in detail; flow of air in ducts, and sizing methods.

AIR CLEANING DEVICES. Types of air filters, cleaning efficiency, sizes and capacities, typical arrangements.

HEAT TRANSMISSION COEFFICIENTS. Heat transmission factors of building materials, tables of heat transmission coefficients.

COOLING LOAD. Design conditions, design wet-bulb and dry-bulb temperatures for principal cities, factors to calculate heat gain.

AMOUNT OF AIR THROUGH COOLING COILS. Advantages and disadvantages of passing all air through coils, formulas and charts.

EXPANSION COILS, VALVES, AND COMPRESSORS. Selection, recommended velocities through coils, physical data of coils.

SELECTION OF WATER COOLING COILS. Counterflow principles, dry pre-cooling coils, charts for selecting coils, physical data on water coils.

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HEATING. Types of heating systems, location, design conditions, normal heat transmission, problems, steam required, exposure factors.

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UA Card--

(Concluded from Page 1, Col. 2)

says that the agreement not only affects the international union's agreement with Grinnell Corp. but also those "with any other employer."

It was not clear at this time whether the agreement would affect contracts entered into by locals directly, one to which the international union is not a party.

Membership in a labor organization as a condition of employment can still be required, according to the settlement stipulation, but it does not have to be with the U.A.

Clearance and job referrals from U.A. or "any other labor organization as a condition of employment, except to the extent permitted by Section 8 (a) (3) of the National Labor Relations Act," was also knocked out.

Text of the cease and desist order, as it applies to the international union, is as follows:

Respondent United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, and its officers, agents, successors, and assigns shall:

1. Cease and desist from:

(a) Entering into, renewing, maintaining, or enforcing any hiring provisions in any agreement or understanding, or from maintaining any practice with Grinnell Corp., or any other employer, which requires its employes to join or maintain their membership in United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, and/or Respondent United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, Local Union No. 120, AFL-CIO, as a condition of employment, except as authorized in accordance with the provisions of Section 8 (a) (3) of the Act.

(b) Causing or attempting to cause Grinnell Corp. or any other employer to require employes or applicants for employment to obtain clearance or job referrals as a condition of employment from Respondent United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, and/or United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, Local Union No. 120, AFL-CIO, except as authorized by Section 8 (a) (3) of the Act.

(c) Causing or attempting to cause Grinnell Corp. or any other employer to discharge employes for failure to pay assessments, initiation fees or dues to Respondent United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, or any other labor organization, except to the extent permitted by an agreement requiring membership in a labor organization as a condition of employment as authorized by Section 8 (a) (3) of the Act.

(d) Causing or attempting to cause Grinnell Corp., or any other employer, to discriminate against its employes or applicants for employment because of their membership in, sympathy for, affiliation with, or activities in any other labor organization, in volation of Secton 8 (a) (3) of the Act.

(e) In any like or related manner restraining or coercing employes of the above-named employer, or any other employer, in the exercise of their rights guaranteed in Section 7 of the Act, except to the extent that such rights may be affected by an agreement requiring membership in a labor organization as a condition of employment as authorized by Section 8 (a) (3) of the Act.

St. Louis Charge--

(Concluded from Page 1, Col. 2)

Assistant Counselor Herman Barken.

Authorized by the commission, the surcharge would amount to $40 a year on each ton of cooling capacity and would be in addition to the regular water rate charged. The extra charge was authorized by the commission in April, 1955 and is to become effective May 1.

Utility To Permit--

(Concluded from Page 1, Col. 3)

rule to permit single phase, alternating current motors up to and including 1 hp. to be operated from 120-volt circuits."

"This change was ordered after receipt of information from representatives of the majority of the manufacturers of room air conditioners that the single phase, 1-hp. air conditioners now being manufactured for 115-volt operation have operating characteristics that are better than those of the ¾-hp. equipment available when our present rules were established."

However, he said, the firm still believes that it is to the best interest of both the company and its customers that single phase, alternating current motors of the ¾-hp. and 1-hp. sizes be operated from 208-volt or 240-volt circuits.

"Therefore, whenever new or special circuits are required or are to be provided for the operation of such equipment, our representatives strongly recommend that arrangements be made to purchase and install the equipment for operation from 208 or 240-volt circuits. This is particularly true in the case of apartment and office buildings."

He added: "We believe that all electrical inspection authorities in our service area will permit the installation of a single phase, 1-hp. motor on a 120-volt circuit subject to such other rules as relate to loading, fusing, etc. No change was necessary in the D. C. Electrical Code."

Wilson said notice of the company's rule change was given by letter to all electrical inspection authorities in its service area and also to the Prince George's County Electrical Contractors Association, the Electrical Contractors Association of the District of Columbia, Inc.

Sees Mortgage Buying Revival--

(Concluded from Page 1, Col. 3)

them privately agreed with him.

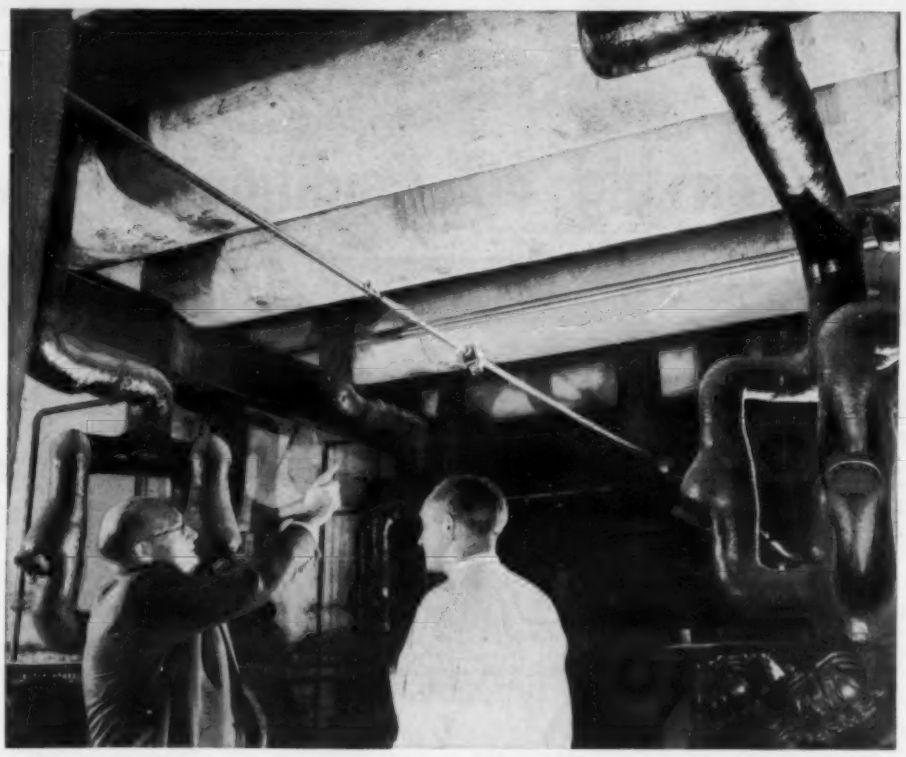
In Washington, meanwhile, the Federal Housing Administration reported that its new 5% insured home mortgages are proving somewhat more attractive to lenders in the resale market.

FHA said the mortgages were bringing a national average price of $97.30 for each $100 of outstanding mortgage amount on April 1, compared with the $96 average prevailing late last year on 4½% mortgages prior to the boost to 5% which the agency put into effect to make the mortgages more desirable to lenders.

Austin said in his talk that life insurance companies, normally big mortgage investors which have been slow to buy for "a good many months," now appear again more willing to make advance commitments of loans to housing developers. Mortgage bankers originate and service mortgage loans, usually for investment by savings banks and the life insurance companies.

Austin said he "was inclined" to regard the government's report of a drop in housing starts for March to 880,000 units, on an adjusted yearly basis, as "just about the low point of the year."

He looks, instead, this year for as many as 700,000 starts based on conventional loans—mortgages other than Federal Housing Administration or Veterans Administration—compared with 635,00 starts last year; at least 150,000 starts based on FHA loans, down from 180,000 last year; and about 100,000 VA-financed starts, against 271,000 in 1956.

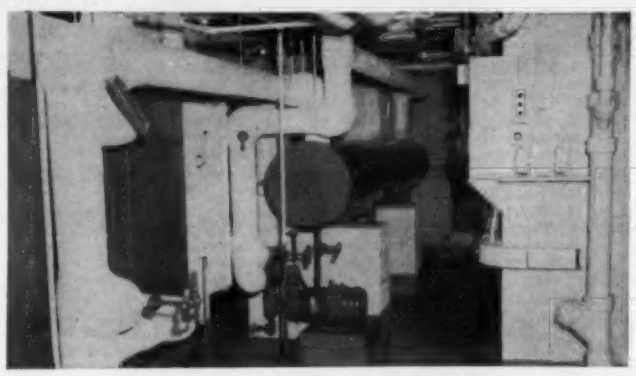


"They've never given us a bit of trouble," states Mr. R. E. Noll (left), Store Superintendent. With him is Mr. J. L. Quisenberry, Head of Maintenance for Wolf & Dessauer, who was with the store when the eight Dry-Ex units were installed in 1937. The system, including eight 50 hp condensing units and 15 remote air handling units, air conditions the main building's seven floors. The system was installed by Hipskind Heating and Plumbing Company of Ft. Wayne.

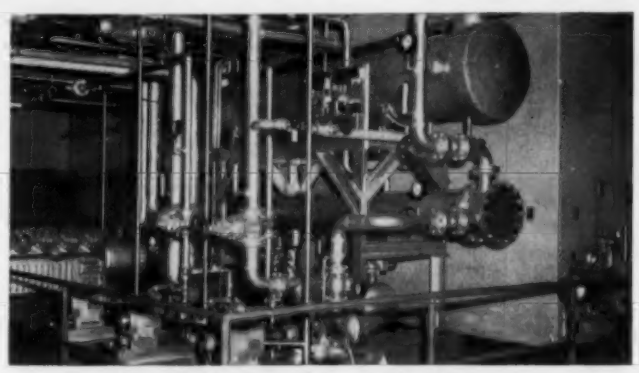
19 YEARS OF TROUBLE-FREE SERVICE

First *Acme* Dry-Ex® Chillers still in operation in famous Indiana department store

Operating with full capacity and efficiency since 1937, eight Acme Dry-Ex Chillers in the Wolf & Dessauer department store, Ft. Wayne, Indiana have never required any maintenance other than routine cleaning. As a result, in almost 20 years of operation, this busy store has never lost a day's air conditioning through interruption of service by these Acme units.



MODERN DRY-EX CHILLERS do all kinds of air conditioning, refrigeration and industrial, direct-cooling jobs. This Dry-Ex air conditions the Anderson Loan Association building at Anderson, Ind. The 50-ton system also utilizes an Acme evaporative condenser.



100-TON DRY-EX AND ACME FREON CONDENSER are major components of this Cincinnati, Ohio air conditioning installation in Western & Southern Life Insurance Company's modern office building. Two Acme Flow-Mizer® cooling towers allow constant re-use of condenser water.

The modern Dry-Ex combines the dependability of Acme's thru-tube construction, proven in 19 years of broad field experience, with the added efficiency of an exclusive star-insert tubing. You receive more chilling capacity per dollar of investment than ever before.

Acme custom builds Dry-Ex Chillers, utilizing standardized parts, to meet exactly the conditions of virtually any water chilling or other liquid cooling application. Capacities from 5 to 400 tons are available in single or multi-circuit units. Two model series, one with star-insert tubing and the other with plain tubing, are available. A wide range of baffle and head pass combinations make it possible to achieve ideal, controlled liquid velocities.

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ACME AIR CONDITIONING REFRIGERATION

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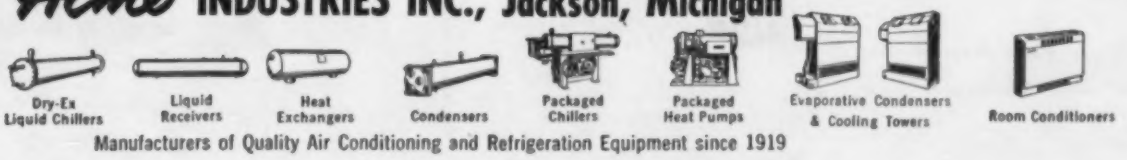

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